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The Oil Man's Calendar

APRIL	
21–23	Southwestern Gas Measurement Short Course, Norman, Okla.
21–24	American Association of Petroleum Geologists, Denver, Colorado.
22–24	Petroleum Industry Electrical Association, Shreveport, La.
23–24	Independent Petroleum Association of America, Fort Worth, Texas.
MAY	
13–15	Natural Gasoline Association, Mayo Hotel, Tulsa. A.P.I. Mid-Year Meeting Canceled.
JUNE	
6	American Petroleum Institute, Illinois Basin Chapter, Robinson, Illinois.
6	Illinois-Indiana Petroleum Association, Robinson, Illinois.
OCT.	
8–10	Texas Mid-Continent Oil & Gas Association, Dallas.
12	National Stripper Well Association, Wichita, Kansas.
13–15	Independent Petroleum Association of America, Wichita, Kansas.
NOV.	
9–13	American Petroleum Institute, Chicago.

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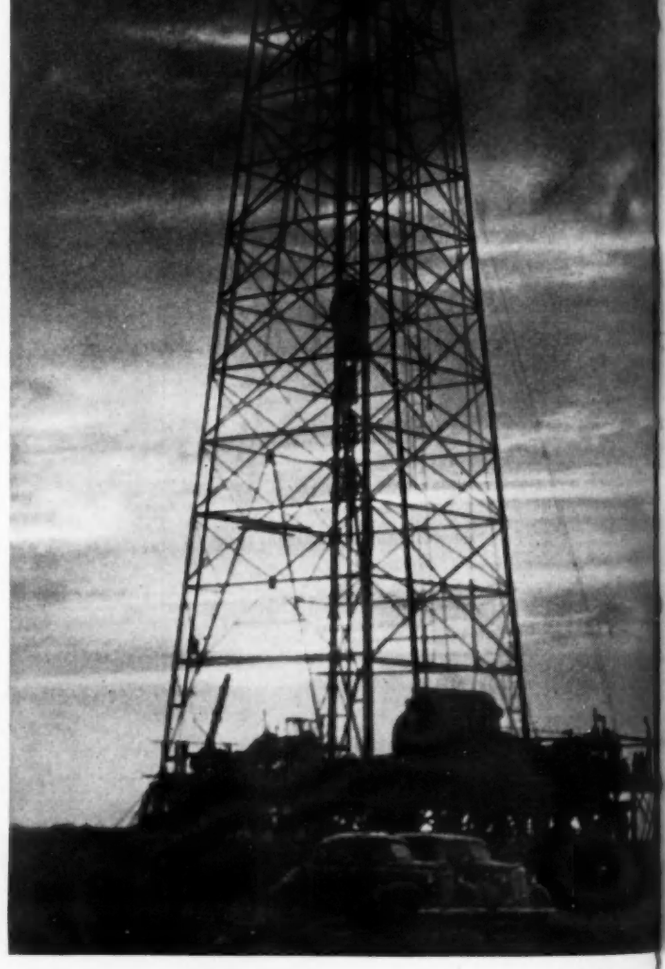
OIL *puts* HORSEPOWER *into* WAR POWER



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The Changing Panorama

No Time for Crying—Action Needed Now

THERE is no need to cry over spilled milk in connection with the action of SPAB last year eliminating the proposed pipe line from Texas to the Atlantic Seaboard. A great many people have changed their minds on a great many things since that time and to be fair it must be remembered that many people thought that the Navy would have no trouble in protecting shipping along our own coastline.

But now we are faced with a situation. More oil must move to the Atlantic Seaboard. U-boat raids on our shipping are a problem to be faced. Also, we may need our coast-wise tankers somewhere else.

Action should be taken immediately to supplement the Atlantic Seaboard's supply of oil through pipe lines. The railroads can with little grace today oppose any pipe line construction. WPB, which controls allocations on pipe, must be thoroughly aware of the situation.

Action is needed. The best brains of the industry have been working on the problem for some time and their recommendations should bear fruit in action at the earliest possible moment.

One-Third of Nation's Water Traffic Is Oil

LITTLE wonder that disruption of the nation's petroleum movement via water has created such dislocation, for it accounts for one-third of all foreign and domestic water-borne trade of the United States. This was revealed in a report of the Board of Engineers for Rivers and Harbors covering 1940.

Total shipments of all products by water to and from, and within, the United States amounted to 607,900,000 tons, of which petroleum accounted for 200,077,000 tons, the report shows. The greatest movement of petroleum was coastwise, which totaled 114,640,000 tons. A large portion of coastwise shipments was from the Gulf Coast to the Atlantic Seaboard. Shipments of petroleum in other water trade classifications were: imports, 13,781,000 tons; exports, 19,835,000 tons; local and intraport, 25,465,000 tons; and inland waterways, including Great Lakes, 26,356,000 tons.

Higher Prices Likely To Force Conversion

EFFORTS to get fuel-oil consumers to convert to coal likely will be assisted by higher prices. In fact, price probably will be a larger factor in forcing conversion than an actual shortage along the Atlantic Seaboard.

Higher prices are necessary to offset increased transportation costs. Since the government is advocating movement of fuel to the Atlantic Seaboard, is encouraging the use of high-freight tank cars, and has permitted a 200-percent advance in tanker rate surcharges, it is indicated oil companies will have a favorable hearing in pleas for increased fuel-oil prices.

Following a recent 19-cent advance authorized by OPA, the New York price for heavy residual fuel oil is now $1.55 a barrel, or nearly $1 per barrel below costs. Fuel oil sells for 85 to 95 cents on the Gulf Coast. To move it via tanker costs $1.52 a barrel, of which 48 cents is basic charges, 96 percent surcharges, and 8 cents insurance. Without considering handling, the total cost therefore is at least $2.37 per barrel. Tank-car freight of $1.65 per barrel tacked onto Gulf Coast prices of 85 cents makes the Atlantic Seaboard cost $2.50 per barrel when shipped by rail.

Boosting of retail prices to levels that will offset cost and tariff charges, would represent such an advance that industrial plants would be hard hit.

Essentially the same conditions exist with respect to light fuel oils used for home heating, an increase of a dollar per barrel being needed to offset higher transportation charges.

Tubular Stocks Survey Being Made by OPC

A QUESTIONNAIRE seeking information on stocks of tubular goods in the hands of oil companies on March 31 has been sent out to major companies by OPC, and shortly will be sent to all other operators. The questionnaire, which is now in process of being filled out by major companies, not only requests information on new and used tubular goods on hand on March 31, but also asks as to the amount of tubular goods under order and the amount used by the companies during the first three months of 1942.

Smaller operators should be receiving their questionnaires shortly. This action was forecast in THE OIL WEEKLY early in March as a preliminary to possible pooling of tubular stocks.

Big Responsibility For Oil Prospectors

THE joint annual meetings of the American Association of Petroleum Geologists, the Society of Exploration Geophysicists and Society of Economic Paleontologists and Mineralogists, to be held this week in Denver, have even greater interest and importance this year than usual.

The future stability of the oil industry is largely dependent on its ability to maintain an adequate discovery rate. As long as an abundant supply of petroleum can be made available, it will sell at sufficiently low prices to assure consumption will remain at high levels. With the discovery rate decreasing in recent years, and with the war, in which petroleum is one of the strategic minerals, the industry's prospectors have had thrust upon them as great a responsibility as ever has come to any scientific body.

Since geologists, geophysicists and paleontologists are the only group within the industry directly charged with guiding its discovery effort, the annual meetings of their

associations offer opportunity for study of the pressing problem of how best to improve the nation's oil and gas discovery. Members of these professions also will find the meetings offer an equally large opportunity for demonstrating their worth and effectiveness.

The program for these meetings has been especially arranged to provide an open forum for discussion of the prospecting question. Whatever the suggestions, they should be of wide interest and value as being the considered opinions of a representative cross-section of the prospecting profession.

Many Exceptions Are Granted to M-68

THE large number of exemptions being granted to the M-68 rule that stipulates 40 surface acres for each well indicates a new trend of OPC and WPB. Operators are being delayed less and less in getting materials to drill on tracts less than 40 acres, applications being acted upon in many instances within 10 days from the time they are filed. As a result, many operators are re-examining their properties to see if they are eligible for any drilling.

In the five OPC districts approximately 1100 applications for exemptions, involving thousands of wells, have been filed. Many single applications cover up to 20 and 30 wells for a particular lease or field.

In District 3, embracing Texas, Louisiana, Arkansas, Alabama, Mississippi, and New Mexico, more applications have poured into the Houston headquarters of OPC than in any other district. This is due mainly to the volume of activity, drilling and production problems on piercement-type salt domes, and to the large number of fields that cover only a few acres. Approximately 400 applications have been filed in District 3 headquarters, involving more than 1000 wells.

Thus, by receiving an exemption operators may drill in fields where multiple sands are present. In approving exemptions, WPB has stipulated in most instances that a well shall not be less than 660 feet from another well and not less than 330 feet from a lease or property line.

Operators have been granted exemptions to drill Ellenburger lime wells on 40-acre spacing in the K-M-A field of North Texas, although the 40 acres already might have several wells producing from shallower formations.

Drilling problems have been complicated in many fields by wells located on 5- and 10-acre tracts, others on 20-acre locations, producing from deeper pays, and by many irregular size leases. However, it is believed many of these problems will be alleviated somewhat with a large percentage of applications for exemptions being granted.

With OPC encouraging filing of exemptions on a field-wide basis the number of exemptions granted for deeper drilling in old fields is expected to increase rapidly. A number of exemptions have been granted in Illinois where random spacing has been the practice, and in some small fields in Oklahoma. Likewise, operators in many piercement-type salt dome fields on the Texas and Louisiana Gulf Coast have received approval for drilling on irregular tracts.

Oil Companies Assist Employees in Service

OIL production and other industrial effort must continue at peak rate if the war is to be won, but no pyramiding of production is of value if there are not the armed men to bring about victory.

Recognizing the need for armed forces, some oil companies have taken steps which will greatly assist those married men formerly in their employ who are now in military or naval units. Granting leave of absence for military service to any employe, married or single, with more than one year's service with the organization preserves for that employe his seniority and job security as well as maintaining for him participation in group insurance.

Such a program, widely extended throughout the oil industry, would enable many men who now feel their value to the war effort greater in uniform than in present industrial posts to enlist and thus further to augment the supply of men available for direct war effort. A company supporting such a program goes far in practical patriotism.

M-68 Brings Big Drop In Illinois Output

BECAUSE of the state's strategic location as the nearest big producing center to the East Coast, the 100,000 barrels daily decline in Illinois production since December is an important factor in the current East Coast shortage. Every barrel of decrease in Illinois creates an increased demand from Mid-Continent and Gulf Coast regions, but unfortunately this involves twice the transportation distance and there is an acute shortage of steel for facilities that might provide the necessary systems.

Production Sustained by Completions

It long has been a matter of record that Illinois production has been sustained by completion of many wells. Invariably, the state's production has followed drilling activity. Therefore, the current drastic decline in drilling presages equally sharp shrinkage of output.

Drilling in Illinois was unrestricted until M-68 imposed 40-acre spacing, and most wells were located on 10-acre patterns. Consequently, from a level of 183 new producing wells completed in December and 190 in January, the rate dipped to 64 in February and 37 in March.

Illinois production in December was 398,000 barrels per day, dropped to 367,000 in January, 347,000 barrels in February, to 325,000 barrels in March, and fell to 300,000 barrels during the week ended April 11. In view of the continued reduction in completions, Illinois production probably will be down to 250,000 barrels per day before summer passes, and as low as 200,000 barrels by the end of the year. Some predict the state will be producing but 100,000 barrels per day within a year.

More than twice as many tank cars are required to move the same amount of petroleum from East Texas as from Illinois to the Atlantic Seaboard. Therefore, the decrease in Illinois output has materially aggravated the East Coast scaracity, and predicted additional decreases will increase the burden of supplying the East. Transportation costs also become much greater.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

By B. F. LINZ
Washington Correspondent

THE first meeting of the National Conference of Petroleum Regulatory Authorities was the major oil development of the week in Washington, a two-day conference winding up with adoption of resolutions extending full cooperation of the regulatory officials of 20 producing states with Coordinator Harold L. Ickes.

With OPC representatives laying full details of all phases of the situation before them, including information of military value, the state officials for the first time learned just what has happened to the nation's oil industry and its transportation facilities in the past nine months and particularly since the outbreak of war.

For Details of Regulatory Meeting See Page 15

Conclusive evidence of the new awareness of conditions was given in one of the dozen resolutions adopted, in which the state authorities pledged themselves to accept OPC recommendations for production quotas.

• • • In another direction, engineering groups were considering proposals for pipe-line construction discussed at the Tulsa meeting of the joint pipe-line subcommittee and later at the April session of the Industry War Council, with a view to getting final recommendations to OPC with minimum delay.

• • • The depletion allowance provisions of the tax laws came up for discussion again during the week when Randolph Paul, Treasury tax expert, urged the House Ways and Means Committee to adopt the department's recommendations for revision as a means of supporting the morale of the country's taxpayers and returning a revenue to the Treasury now estimated at more than $200,000,000 a year.

Retention of the depletion allowance for the oil and mining industries will lose to the Treasury not $80,000,000, as estimated by Morgenthau, but a cool $206,000,000, the committee was told April 16 by Paul. Appearing in a return engagement before the committee as it prepared to close its hearings on the tax bill, Paul admitted that his latest estimate of the revenue to be derived from reformation of the depletion deduction is based on the new corporation taxes the Treasury has proposed, as applied to the 1942 business volume.

Despite Paul's plea, members of the committee appeared unmoved and gave no indication that they would abandon their opposition to the Treasury's proposals. A final decision, however, will be made when the committee undertakes the actual writing of the tax bill.

• • • Further restrictions in supplies of heating oils on the Atlantic Coast and in Washington and Oregon are foreseen in a warning by OPA that home owners who can do so should change from oil to coal heating.

Apparently pessimistic over the prospects for next winter, Dan A. West, director of OPA consumer division, said that indications are that "as the war continues there may be need for additional steps to curtail consumption of petroleum products in the Pacific Northwestern and the Atlantic Coast states."

As West issued his warning, the WPB ordered a halt to the manufacture of oil burners and coal stokers for residential use after May 31 and limited production of commercial and industrial types to consumers possessing a preference rating of A-10 or higher. It was emphasized that the order was designed to conserve metal, rather than fuel, however.

In another order, OPA announced that retailers in the curtailment area may compute their three-cent margin only on the cost of gasoline plus tax, and may not put into "cost" any of the expenses for conduct of stations.

• • • Deliveries of oil to the Atlantic seaboard by rail increased by 60,000 barrels a day during the week ended April 11, to hit a new high at 586,350 barrels, it was reported by OPC. Officials estimated that the traffic represented use of 43,500 tank cars.

During the week ended April 4, deliveries averaged 525,700 barrels a day with slightly less than 40,000 cars.

• • • A thorough study of the possibilities of producing gasoline for war purposes from coal was ordered by the House Mines and Mining Committee. Representative Jennings Randolph of West Virginia was named as chairman of a special subcommittee to conduct the inquiry.

More Recommendations Made by War Council

A recommendation that filling stations in areas not under restriction of deliveries be limited to not exceeding 12 hours of operation per day or 84 hours per week has been submitted to Coordinator Ickes by the Petroleum Industry War Council, it was disclosed during the week by William R. Boyd, Jr., chairman.

Boyd explained that the limitation of hours, proposed by the

OPC Studying Suggested Pipe Line Recommendations

State Regulatory Authorities Plan Regular Meetings

TAPCO Line Turned Down

council's marketing committee, would conserve electricity for war industries, aid in meeting a growing shortage of experienced labor, and give station operators an opportunity to lead a "more normal" life.

He said the council also had adopted resolutions at the suggestion of the marketing committee urging a study nationally of the asphalt and asphaltic products situation with a view to reducing distribution of those materials to absolutely essential requirements to conserve transportation facilities, and a study in Districts 2, 3, 4 and 5 of available fuel-oil supplies and essential demands to determine whether present withdrawals to meet demands in the shortage areas may result in a shortage of fuel oils in areas which now have adequate supplies.

The council also proposed some changes in Recommendation No. 40, imposing restrictions on the quantity of scarce chemicals used as additives in automotive lubricating oils and greases, and changes in plans for the conservation, standardization and substitution of containers.

Engineering Groups to Rush Pipe Line Plans

A variety of recommendations for pipe-line construction to feed oil into the East Coast area is under consideration by OPC, it was disclosed last week by Deputy Coordinator Ralph K. Davies.

Davies announced appointment of an engineering committee to which has been assigned specific projects for detailed study, to be headed by W. R. Finney, Standard Oil Company of New Jersey, New York, and to consist of C. H. Kountz, Sinclair Refining Company, Independence, Kans.; Charles Bunje, Jr., president, Illinois Pipe Line Company, Findlay, Ohio; B. E. Hull, president, The Texas Pipe Line Company, Houston; T. E. Swigart, president, Shell Pipe Line Corporation, Houston, and G. J. Hanks, Tide Water Associated Oil Company, New York.

The proposals under consideration, Davies said, contemplate digging up and relocating more than 1400 miles of pipe, as well as installation of large quantities of used tankage and pumping equipment. The increased movement which would be obtained in this manner would be supplemented by increasing capacities of several lines and by reversing flow of others.

Some of the industry groups which have been working on the matter also have urged that substantial new capacity from Texas to the East Coast be provided if steel and pumps can be obtained.

The projects turned over to the engineering committee for review were proposed by the temporary joint pipe-line subcommittee representing Districts 1, 2 and 3, set up at the request of OPC and instructed to devise methods of increasing pipe-line movement of oil to the Atlantic seaboard. The committee met recently at Tulsa with representatives of 70 companies and filed a report recommending 10 projects which were reviewed and approved by the Industry War Council at its April meeting last week.

These projects contemplate use of varying amounts of 8-, 10-, 12- and 14-inch line pipe which can be obtained from existing facilities, now either idle or operating between points which can be served by other lines or other methods.

To Relocate Some Lines

Some of this pipe, it was held, could be relocated on new routes from the Southwest to Illinois or to Mississippi River points, from which oil could be moved eastward by combinations of pipe line, rail and river barge. Some of the pipe also could be used to extend existing lines, one suggestion being to carry the Plantation pipe line from Greensboro, N. C., to Tidewater, Virginia, which would require construction of a line from the Texas Gulf Coast area to Baton Rouge.

"From an examination of the report of the joint pipe-line subcommittee, it is apparent to the coordinator's office that most of the projects proposed can, and should, be undertaken at once, so that work may be completed and the facilities placed in operation at the earliest possible date," Davies said.

"The detailed engineering report should be available within the next few days. As soon as we get it, OPC stands ready to assist in any way possible to expedite completion of the recommended projects.

"Naturally, the job will be tremendous, involving as it does the actual taking up of existing lines and, in some cases, the relaying of pipe at places from 500 to 600 miles distant from where it was located originally. It is a job, however, that must be done. So far as this office is concerned, we are proceeding on the assumption that overland transportation must be built up to the point where it can meet—if necessary—all of the minimum essential requirements of the Atlantic seaboard for petroleum and its products.

"The future of tanker transportation is too uncertain, the need of fuel oil for the eastern war industries too great, for us to act on any other basis than that."

Dodge With WPB

The War Production Board announced the appointment of H. W. Dodge, general sales manager of The Texas Company, as assistant deputy director of the materials division.

His appointment makes Dodge third ranking official in the division.

WPB Revokes Order P-83 Applying to Suppliers

With petroleum supply houses now able to secure priority assistance either by extending the ratings on orders received by them from operators or by applications on distributors' Form PD-1X, WPB last week revoked preference rating order P-83 under which they have operated in the past.

The board recently perfected a system whereby supply houses can replace material sold by extension of the ratings on which sales were made. It was explained that while oil industry supplies are not especially listed on Form PD-1X, most of the types of supplies carried by supply houses fall into the categories to which preference ratings may be assigned on that form for other types of supplies, it was said, the suppliers will be required to extend the ratings on the orders which they fill.

Eastman Thumbs Down on Trans-American Line

Application of Trans-American Pipe Line Corporation for a certificate of necessity as a national defense project was rejected April 16 by Defense Transportation Coordinator Joseph B. Eastman.

At the same time, however, Eastman made it clear that he saw the necessity of additional pipe-line construction to the Atlantic seaboard and announced he would cooperate with other agencies in developing such facilities.

The application of Trans-American, proposing a line from Texas to Savannah, was rejected on the basis of a report by the three-mem-

[Continued on page 50]

State Regulatory Authorities Pledge Support to Ickes

By B. F. LINZ, Washington Correspondent

REGULATORY authorities of the oil-producing states pledged full cooperation in efforts of the Office of Petroleum Coordinator to meet the requirements of war.

In a two-day meeting April 14 and 15, representatives of the 20 state bodies received what one OPC official termed a "liberal education" in the current oil situation, the outlook for the future and the program of the coordinator's office.

In a dozen resolutions adopted at its final session, the conference threw its full support behind Ickes' program.

The most important recommendations were that the several states follow quotas recommended by the coordinator; urging a "fair price" for crude; suggesting opening of public lands to greater oil development, and asking retention of the 27½ percent depletion allowance.

Governor Leon C. Phillips of Oklahoma was selected as temporary chairman to serve until permanent officials were selected, an election resulting in the naming of Hiram M. Dow of New Mexico as chairman; Jerry Sadler of Texas, vice chairman, and P. J. Hoffmaster of Michigan, secretary.

Greeting the conference as it opened its meetings, Ickes called for "strong, active, effective conservation laws" in the producing states "so that the end of the war would find the states so well equipped and with such a successful record of cooperative accomplishment during the war as to demonstrate fully that the states could then effect continued proper regulation."

The coordinator made it clear that there is no thought in Washington to "nationalization" of the oil industry, but at the same time called upon state officials to forget state lines during the war to work together for maximum production of the things needed for its winning.

"The main problem that should concern all of us is how the industry as a whole can best meet all essential requirements of the war program for petroleum and its products with the minimum expenditure of critical materials," he said. "We must think not only of our immediate requirements, but we must plan and conduct operations so as to provide a sufficient supply for an indefinitely long period into the future."

Ickes stressed his disagreement with a feeling which he said exists in some quarters, that state laws and the functioning of state regulatory bodies are no longer necessary or important "because it is alleged by some that the federal government has taken over full control of the oil business."

"I can assure you that this is not the case," he declared. "Close coordination of the full efforts of all parties concerned will be required if the petroleum industry is to meet successfully the challenge imposed by this struggle.

"It has been necessary to impose a certain amount of federal regulation on the petroleum industry, just as war requires national supervision of national interests on a national scale in all lines of activity. War is a national undertaking

[*Continued on page 52*]

NATIONAL CONFERENCE OF PETROLEUM REGULATORY AUTHORITIES

The above group represents the first conference of state petroleum regulatory authorities meeting in Washington last week at the call of Harold L. Ickes, Petroleum Coordinator. Attending the opening session were: Lawrence Williams, Counsel, Legislative Committee on Interstate Cooperation, New York; Parker L. Melvin, Pennsylvania; Dr. Paul H. Price, State Geologist, West Virginia; G. C. Curtis, Superintendent, Oil and Gas Division, Department of Mines and Minerals; C. T. Smith, L. M. Ladet, S. F. Peterson, Alfred H. Bell, Illinois; Prof. Ralph Esarey, State Geologist, Indiana; Andrew Schoeppel, Chairman, Kansas Corp. Commission, Kansas; N. W. Shiarella, President, Kentucky Oil and Gas Association; D. J. Jones, State Geologist, Kentucky; F. R. Frye, Geological Survey Division, Department of Conservation, Michigan; Allen G. Burke, Director, Department of Agriculture and Inspection, Nebraska; Charles H. Jones, Director of Commerce, Ohio; Reford Bond, Chairman, Corporation Commission, J. J. O'Laughlin, Oklahoma; O. C. Bailey, Chairman, Oil and Gas Commission, Arkansas; Joseph McHugh, Commissioner of Conservation, Louisiana; Dr. Hugh M. Morse, Supervisor, State Oil and Gas Board, Mississippi; John M. Kelly, Member, Oil Conservation Commission; H. R. Rodgers, State Commission of Public Lands, New Mexico; Jerry Sadler, Member, Railroad Commission, Texas; Warwick Downing, Chairman, Gas Conservation Commission, Colorado; A. B. Cobb, Chairman, Oil Conservation Board; Austin B. Middleton, Chairman, Board of Railroad Commissioners, Montana; Warren D. Skelton, State Mineral Supervisor, Wyoming; Reed Bush, Chief, Division of Oil and Gas, California; Gov. Leon Phillips, Chairman of the Interstate Oil Compact Commission, Oklahoma; Hiram Dow, New Mexico, representative to the Interstate Oil Compact Commission; Charles L. Orr, Oklahoma; William R. Boyd, Jr., Chairman, Petroleum Industry War Council, Washington, D. C.

Oil Industry Has Big Stake in Synthetic Rubber

AFTER months during which the rubber situation has been becoming more and more acute, months during which the public has been expecting and demanding vigorous action in the construction of synthetic rubber plants, it now appears that planning, delay, and cross purposes all are beginning to give way to action.

Although the government's announced program of 700,000 tons per annum of synthetic rubber does provide a certain percentage for emergency civilian use, the Petroleum Industry War Council last week went emphatically on record as urging construction of an additional 300,000 tons per annum capacity for civilian uses relating to war effort.

As the matter stands, Secretary of Commerce Jesse Jones told THE OIL WEEKLY last week that "we now have engagements for manufacturing facilities sufficient to produce more than 700,000 tons of synthetic rubber." Four plants with capacity of more than 60,000 tons are now under construction, one of which is due to be in production by July 1, two others before September 1 and the fourth before the end of the year, he said. Newspaper reports during the week have indicated that Standard Oil Company (Indiana) and others plan to build a large plant, a group of associated companies plan a 75,000-ton plant in Texas, and announcements of contracts on other plants are expected shortly.

The oil industry, except those who have been closely associated with synthetic rubber, and the public alike, have been unable to understand why more action has not been forthcoming long before now.

Many Factors Involved

Many factors have combined to slow down the start of heavy construction of synthetic rubber facilities. Jesse Jones, who has been in charge of the rubber problem, is a very busy man with all his various duties and he probably has not had the time necessary to make a close study of the rubber situation. There seems to be a feeling that he gained the idea from the Dutch and English that synthetic rubber production on a large scale would not be necessary, and the idea that synthetic rubber cannot compete with cheap natural rubber has wide acceptance. He and a great many other people did not believe that the rubber-producing areas would fall victim to the Japs as quickly as they did. Finally, under pressure of public opinion and the emergency facing the country, War Production Board appointed a rubber chief—a business man with some knowledge of rubber, although not a rubber authority.

In addition, there was uncertainty on the part of oil companies as to what processes would be best. This has been clarified to a great extent by recent announcement that Standard Oil Company of New Jersey's patents would be made available during the period of the war, royalty free, and that a governmental agency would aid in determining the royalty after cessation of hostilities.

The situation has never been all that it should have been. Contracts actually placed and "letters of intent" have been combined in discussions of what had been accomplished to the point where the public had a misconception of what actually had been done. A letter of intent is simply a letter from the government agency expressing the desire to place a contract with a company for the manufacture of a product on terms mutually satisfactory, plus a favorable letter of reply. It is not a contract and the amount of construction can be changed by the government when the contract comes up for execution.

THE OIL WEEKLY is not certain as to just how much of the more than 700,000 tons referred to by Jones is represented by actual contracts.

WPB has allocated steel necessary for construction of 600,000 tons per year capacity. If more than 700,000 tons capacity is constructed, WPB will have to allocate more steel, and if Petroleum Industry War Council's recommendations for the additional 300,000 tons meet approval, steel must be allocated for that.

Small Amount of Steel Needed

As a matter of fact, steel necessary for the additional 300,000 tons of synthetic rubber production would represent less than a day's capacity of the steel mills of the country.

In connection with its recommendations for this additional 300,000 tons, the resolution of the PIWC sets out that: *the industrial economy and social welfare of the United States is dependent to an unprecedented degree upon automotive transportation; the effectiveness of the war effort will be limited by any lack of balance that develops between production as a whole and transportation as a whole; the effectiveness of the petroleum industry in providing pivotal war materials such as aviation gasoline, toluene, lubricating oils and fuel oil will be impaired or even destroyed if the operating balance of the industry is permitted to be upset through the shrinkage of gasoline demand below critical levels; that civilian morale will be injured if passenger-car usage is restricted more than is fundamentally necessary to meet essential requirements; the 700,000-ton governmental program makes no adequate provision for civilian cars but is earmarked for military and related usage here and abroad.* (We must provide rubber for our allies as well as ourselves.)

These reasons are sound and indicate a necessity which amounts to an emergency.

Stated in somewhat different language:

Unless some provision is made for tires of various kinds, the market for gasoline in the country will literally dry up and the production of gasoline as a by-product of critical petroleum war materials will result in either necessity for steel storage, or destruction of the gasoline as a nuisance, a waste which would be criminal. And if such waste of gasoline should occur, either through ill-advised attempts to put it back into the ground or through outright destruction, it must be remembered that gasoline has always borne a substantial part of the return from refining a barrel of crude oil, and its loss would mean increased cost of other petroleum materials.

Waste Would Be Absurd

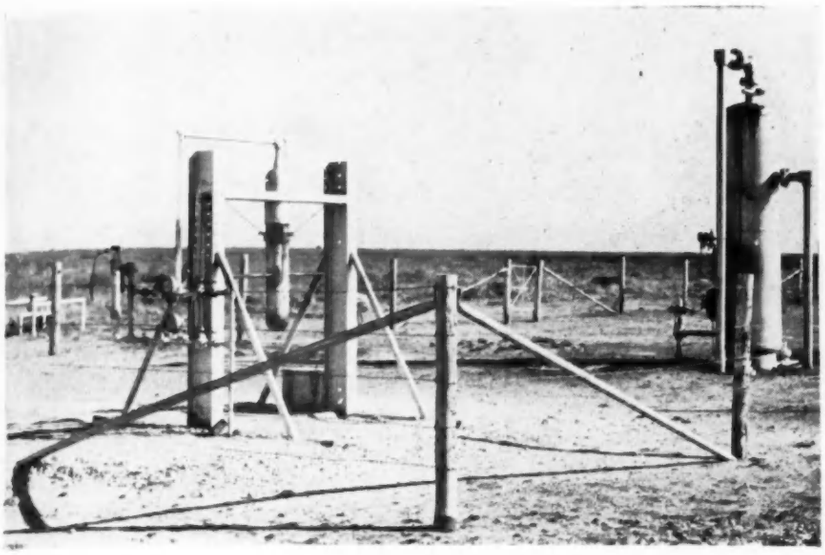
It seems absurd even to consider the possibility of waste of gasoline through trying to put it back into the ground or through burning it, but unless one of these things is done, or the gasoline is used by the public, refineries will have to shut down—as they have been shutting down—because of the backing up of refined products.

In the meantime, Ford Motor Company is reported in the daily press to have developed an automobile tire using not more than one sixteenth of the rubber heretofore used. The new tires are reported to be under test with no details given out by the company as to just what the new manufacturing methods are. Senator O'Daniels of Texas has given out a press release saying that 14 rubber plants will be built in Texas and every city with vacant ground adjacent to switching facilities regards itself as a potential Akron .

At the same time Goodyear Tire and Rubber Company announced from Akron that it is conducting tests on tires "without rubber." The company would not amplify its statement other than to say that they had test cars on the road running on tires made without rubber.

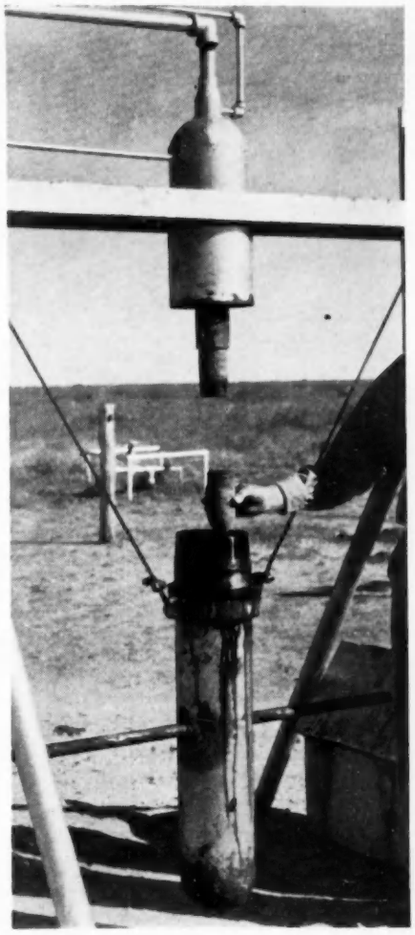
Although heretofore overshadowed by the large current program to make Buna (butadiene) synthetic rubber, Butyl rubber, a less costly product and with quicker production possibilities, is receiving considerable attention. The PIWC committee appointed to study possibilities of procuring a supply for civilian use is to give special attention to the manufacture of Butyl rubber, also a petroleum derivative. Members of the committee had expressed the view that this product offered a means of meeting civilian needs with a saving in money and steel.

[*Continued on page 52*]



Gas under 400 pounds pressure is supplied to pressure testing chamber by nearby line and separator (left), the latter serving to hold the pressure constant, and at the same time removing oil that may come in with the gas.

Flow valve to be tested is screwed up into visible portion of tubing and closed on bottom with orange peel weld. Outer chamber, or casing, is then raised and screwed into upper section. Individual ¼-inch lines connect tubing and casing chambers to pressure gauges on manifold.



Bottom-Hole Pressure Conditions Simulated

In Flow Valve Test Rack

By GILBERT M. WILSON
Staff Writer

ONE of the chief problems connected with installation and successful operation of flow valves in producing wells, that of determining the exact pressure differential under actual well conditions at which a particular valve will operate, recently was solved, or at least greatly simplified, by a major company operating in West Texas.

A simple pressure chamber in which is placed the flow valve, was mounted on a heavy steel rack and connected up with high-pressure gas from a field line. By manipulation of several valves and checking pressure gauges and a manometer, actual bottom-hole pressure and flowing conditions may be observed while the valve operates. From the information thus gained, the valve may be adjusted at the surface before the tubing string is lowered in the well, thus obviating the necessity of making several trial-and-error settings before the valves are exactly adjusted to the conditions of a particular well.

The pressure chamber essentially is a short section of an oil well, complete with casing and tubing. The lower section of the casing is removable, to allow the flow valve to be screwed on to the tubing. Through outside controls, high-pressure gas may be injected into or released from the tubing and/or casing, simulating the exact pressure or flow conditions that are found at depth in a well.

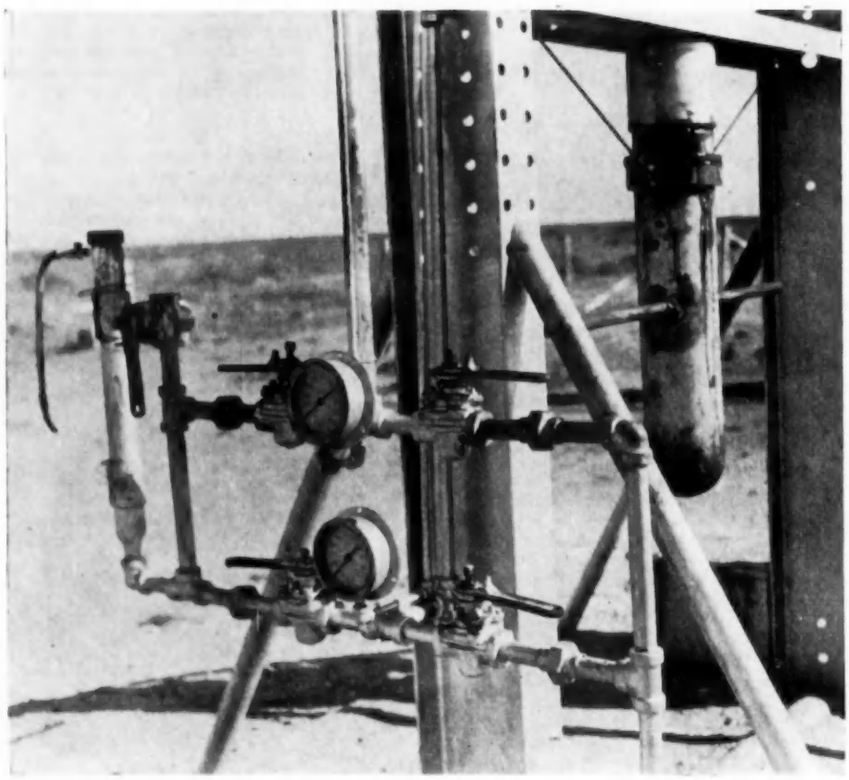
The outer pressure chamber, or casing, is made up of two short sections of heavy 7-inch casing connected together with thread and collar. Both ends of the chamber are closed with orange-peel welds. The top section, welded in place in the center of the channel-iron cross-member extending between the two uprights of the rack, is approximately 18 inches long, including the collar. The lower threaded section is 34 inches long, and by means of a collar and counterweight system, can be raised and lowered with a minimum of effort while the two halves are screwed together or broken apart.

A 1- to 2-inch swage nipple is welded into the center of the upper end of the casing, the 2-inch portion extending down into the interior in order to permit attaching approximately two feet of 2-inch fittings, or at least sufficient to extend down below the opening of the casing.

Manifold Facilitates Control

An extra-heavy, 1-inch line connecting into this fitting on the upper end of the tubing extends over to a valve-control manifold on one side of the test rack. A similar line taking off from the side of the upper portion of the casing, also runs over to this manifold. Paralleling each of these two lines is a ¼-inch line that brings pressure over to two pressure gauges mounted on the manifold.

The manifold consists of a 1-inch plug valve mounted on laterals on either side of both tubing and casing pressure lines. The valves on the right admit pressure into the



Valves on the right side of this handy manifold admit pressure into either or both tubing and casing, while those on the left exhaust pressure either to atmosphere or through the permanently mounted orifice well tester on the far left side of the manifold.

system from the 400-pound pressure supply line, and those on the left side exhaust the pressure either to the atmosphere, or into a permanently mounted orifice well-tester fitting. The fitting shown in an accompanying photograph on the far left side of the manifold is the orifice portion of the manometer, and during the testing procedure the manometer is connected to the orifice well tester to indicate the static pressure and permit calculation of the volume of gas being vented to atmosphere. This affords accurate information as to gas volumes passed by various sizes of flow-valve ports at known differentials and, when checked with well performance, facilitates changes in the interest of increased efficiency.

Actual testing of the flow valves is a simple procedure and takes only a few minutes for each one. The valve to be tested is screwed into the bottom of the exposed 2-inch nipple inside the casing, and a 2-inch bull plug is screwed on to the bottom of the valve to close off the passage of any gas between the casing and tubing except through the valve itself. The lower section of the casing then is screwed into the upper part, the threads being made up tightly to to prevent any leakage under the 400-pound pressure to which it may be subjected.

With the tubing open to atmosphere, pressure is slowly admitted to the casing annular space until the differential between the casing and tubing becomes great enough to snap the valve shut on the flow valve. The tubing is then pressured to simulate a slowly rising fluid column in the tubing. Since the flow valve operates on a principle of differential, and not pressure alone, the valve will remain closed until the rising tubing pressure reaches a point at which the differential becomes equal to that for which the valve originally was set to operate. When this point is reached the flow valve will open, admitting gas from the casing again. Both the tubing and casing are then equalized, the flow valve remaining open.

The tubing input valve then is closed, and gas is bled off the tubing, simulating the emptying of the tubing string above that valve, and gradually increasing the rate of escape, at the same time closely watching the pressure gauges to determine the exact pressure at which the flow valve snaps shut. Gas that is bled off the tubing is turned through the orifice well tester, and the exact volume of the gas passing through the valve also is noted at the moment that the valve shuts.

Each flow valve to be run into a well is tested in this device before being made up in the tubing string. Any adjustments to be made in the kick-off pressure settings can be made with the assurance that they will conform to the conditions that by computation and experience are expected at depth in the well. Similarly, whenever a string of flow valves is removed from a well they are tested individually to determine if they were operating the same way at the end of the period as they were when they were originally run in the hole. This procedure yields a constant check on the performance of each make of valve which may be used. On valves that have been removed due to poor operating results, it also indicates whether a valve failure has occurred, or changes in well conditions have taken place.

Other principal purposes of the test rack include detection of valve leaks in new and reconditioned valves, as well as in valves that are being taken out of service; changing valve differential settings by varying spring tensions; and varying the valve port diameter in order to permit the passage of optimum volumes for the operating conditions.

Gas is maintained at a constant pressure of 400 pounds by means of a high-pressure separator located beside the test set-up. The separator also removes any oil that may have come in with the gas, and which might otherwise get into the test apparatus.

Two handles are welded to the side of the lower section of casing to facilitate tightening and breaking out of that section by hand. The collar on the top of this section is lubricated occasionally to assure free-turning while supported by the wire-line, pulley and counter-weight system.

A sheet steel tool box which can be locked, is bolted to the bottom of one of the vertical members of the rack. Besides tools, the box contains adapter fittings and nipples which may be used on the tubing should the flow valves be other than 2-inch size.

The sturdy rack, not including valves and fittings, is made almost entirely out of salvaged steel material, and is mounted on a skid base to permit its being moved to other leases or areas.

War Problems Having Increased Effect on Industry Operations

By L. J. LOGAN, Associate Editor

THROUGHOUT its operations, the oil industry of the United States is feeling with increasing acuteness the restrictive, problem-imposing effects of war.

On the one hand, efforts are being put forth to step up production of aviation gasoline, critically needed lubricants, toluene for explosives, butadiene for synthetic rubber manufacture, and heavy fuel oils for military and war-industry use.

But on the other hand, holding down of gasoline production is made imperative by current and prospective shrinkage of consumption, because of the shortage of transportation and the lack of new tires and new automobiles.

The restricted market for gasoline makes necessary, in turn, an abnormal holding down of refinery throughput of crude and a drastic holding down of crude oil production.

Pipe line operations have been altered and generally stepped up in partial compensation for the loss of tanker transportation, due to sinkings of ships and transfers to war service; and railway tank car shipments have been increased to incredible levels; while river barges have been made to move increased volumes of oils from the Southwest to the East. Nevertheless, the transportation problem still is most serious and presages more drastic and widespread rationing, although prospects that new tires and new cars may not be available for civilian use for years indicates further shrinkage of civilian consumption of gasoline, fuel oils, lubricants, and other petroleum products is in store.

The downward trend of crude oil production and refinery throughput of crude appears destined to continue, therefore; although the decline will be limited by steadily growing requirements of aviation gasoline, lubricants, fuel oil, toluol, and butadiene.

However, supplying large quantities of oils for war on land, sea, and in the air around the globe will be a herculean responsibility that will entail the use of great numbers of tankers—possibly more tankers than will be available except through giving up for war service all the tankers that are not being used strictly for war purposes.

There is hope that sinkings of tankers by submarines will be materially curbed, and new tankers are coming off the ways in large and increasing numbers. But even the most optimistic must be resigned to further losses through sinkings. And supplying war machines on the opposite side of the earth with oil from the United States will be a Magellanic undertaking for each tanker in such service, with the result that an incredibly large number may be required. Aside from delivering the oils, tankers also will be needed to serve as floating storage in remote places of the war zones.

Furthermore, the indicated requirements of oils by the United Nations constitute not a problem of the future but of today. Oils must be moving now to Australia, Great Britain, Africa, and wherever else they are being used or will be needed. Stocks must be built up, asid from supplying current requirements.

Information on ship movements is not divulged, but it has been indicated that substantial numbers of tankers have been and are being diverted from normal, coastwise service to war service, and has been a factor in the shrinkage in movement of oils from the Gulf Coast to the East Coast.

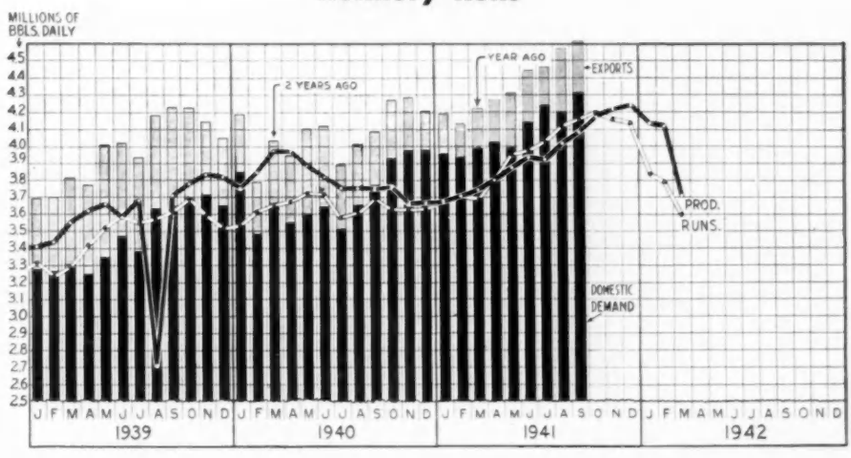
Viewed from any angle, therefore, the outlook for the oil-industry is one of restricted over-all demand for its products, with tanker transportation the outstanding limiting factor.

At the same time, however, the industry's war problem is not simply one of cutting down on manufacture of its principal peace-time product, gasoline, and of reducing crude production and drilling.

Along with those readjustments must be made various radical changes in operations in all branches of the industry, from prospecting to retailing.

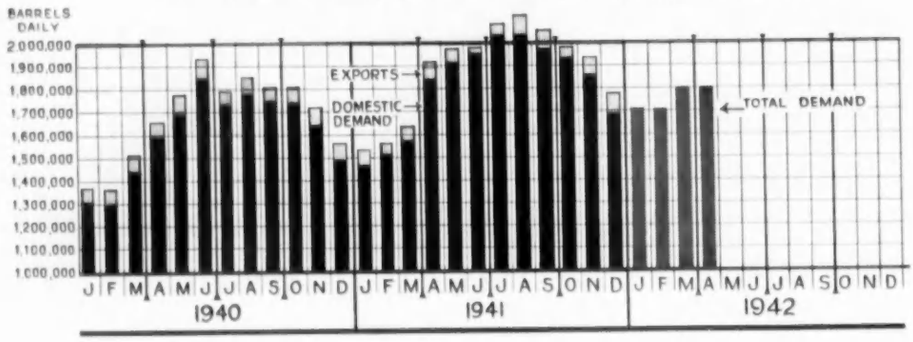
The refining branch is being called upon primarily to supply in increased quantities the several products directly essential in prosecution of the war, namely, aviation gasoline, aviation lubricating oil, toluol, butadiene, fuel oil, and so forth. But it also is confronted with the problem of supplying those oils without making more ordinary

Demand for All U. S. Oils — Crude Oil Production Refinery Runs



Demand for Motor Fuel Under Year-Ago Trend for First Time in April

Data for 1942 and late 1941 based on Bureau of Mines' monthly forecasts; earlier data from bureau's monthly petroleum statements giving actual results.



gasoline than needed. Consequently, important readjustments of yields are being forced, and it is indicated that large volumes of ordinary gasoline which normally would have been sold to motorists actually will be cracked and converted into some of the mentioned critically needed war products. The shrinkage of the market for gasoline meanwhile has filled storage of many refiners of the Southwest, and unable to foresee relief through a revival of demand, such refiners have in some instances closed down their plants indefinitely. Major companies, as well as independents, are among those that have closed down plants or that contemplate doing so.

Refinery runs currently are about 15 percent under the peak proportions reached last fall, having dropped in the week ended April 4 to 3,515,000 barrels daily, compared with a record high of 4,120,000 barrels a day in the week ended October 18, 1941. Currently, plants of the country are being operated at 75 percent of rated capacity, against 96 percent in the record-breaking week. Especially hard hit of course, are refineries of the East Coast and the Gulf Coast, due to the transportation situation, those in the East being restricted to 60 percent of capacity.

At the present proportions, refinery runs are back down around the levels that prevailed in the latter part of 1939 and throughout 1940, being lower than at any time in 1941. However, refining capacity is substantially greater now than in those past periods, and consequently, there is now more idle plant capacity than then. Whereas runs in late 1939 and early 1940 at rates now prevailing required utilization of 83 percent of available capacity, the same throughput now keeps only 75 percent of plant capacity in use.

The extent to which plant capacity was used in the various districts in the week ended April 4, as reported by the American Petroleum Institute, is indicated in an accompanying table.

District	Refining Capacity (Bbls. Daily)	Crude Runs to Stills (Bbls. Daily)	Percent of Capacity Operated
East Coast	714,000	429,000	60.1
Appalachian	174,000	158,000	90.8
Ind.-Ill.-Ky.	784,000	691,000	88.1
Okla.-Kans.-Mo.	418,000	331,000	79.2
Inland Texas	266,000	157,000	59.0
Texas Gulf	1,130,000	866,000	76.6
La. Gulf	176,000	155,000	88.1
N. La.-Ark.	97,000	74,000	76.3
Rocky Mt.	138,000	96,000	69.6
California	787,000	558,000	70.9
Total U. S.	4,684,000	3,515,000	75.0

Just as Southwestern refiners have had to curtail crude runs to stills, producers in the Southwestern states have been confronted with the problem of disposing of their crude and finally have had to operate under drastically curtailed allowables. United States crude oil production averaged only 3,611,300 barrels daily in the four weeks ended April 4. That was nearly 13 percent less than the daily average production of 4,138,000 barrels in December, 1941. For April, even less crude oil production is indicated, as pipe line proration in several districts and limitations on producing ability of some states will hold actual output below the 3,666,800 barrels per day scheduled under OPC allocations and state allowables.

Especially affected by the shrinkage of demand for crude are Texas and New Mexico, where April allowables are around 25 percent below production in December.

Shown in an accompanying table are the decreases that have occurred in crude oil producing rates in the various states within the past four months.

State	Crude Oil Production In Dec. 1941 (Bbls. Daily)	Recommended Production In Apr. 1942 (Bbls. Daily)	Percent Change
Arkansas	74,300	74,000	—0.4
California	631,900	659,800	+4.4
Colorado	6,100	6,900	+13.1
Illinois	397,800	[1]354,400	—10.9
Indiana	18,600	18,200	—2.2
Kansas	256,700	253,400	—1.3
Kentucky	12,700	12,800	+0.8
Louisiana	347,400	313,000	—9.9
Michigan	56,800	60,200	+5.9
Mississippi	70,500	[2]49,800	—29.3
Montana	22,000	23,700	+7.7
New Mexico	112,200	86,000	—23.3
New York	15,100	14,600	—3.3
Ohio	9,900	10,100	+2.0
Oklahoma	427,600	436,900	+2.2
Pennsylvania	49,300	49,900	+1.2
Texas	1,532,300	1,134,000	—26.0
West Virginia	9,800	[3]15,200	+55.1
Wyoming	82,200	88,900	+8.1
Others	5,300	5,000	—5.6
Total U. S.	4,138,500	3,666,800	—11.4

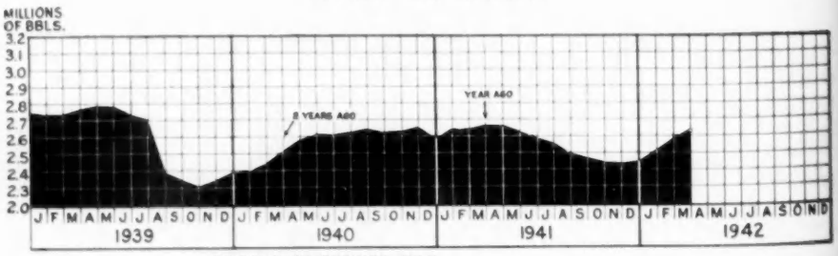
[1] Actual production in week ended April 4, 1942, was 314,200 barrels daily.

[2] Actual production in week ended April 4, 1942, was 98,450 barrels daily.

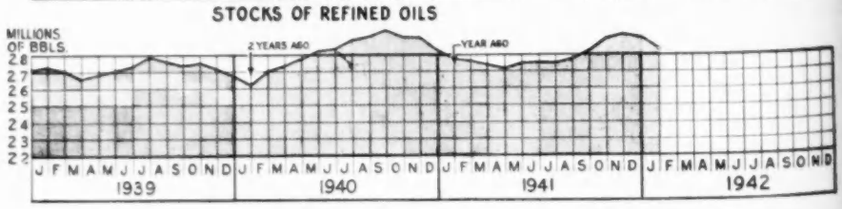
[3] Actual production in week ended April 4, 1942, was 9,900 barrels daily.

The curtailment of crude oil production has come swiftly, following the mid-January commencement of the submarine campaign against

Crude Oil Stocks



STOCKS OF REFINED OILS


MILLIONS OF BBLS.
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2 YEARS AGO
YEAR AGO
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1939
1940
1941
1942

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HYDRAULIC KOBE PUMPING SYSTEM

American shipping. After issuance of original recommendations by the OPC for production in March, emergency and lower allocations were prescribed; and after the Bureau of Mines had forecast April demand for domestic crude at 3,730,000 barrels daily, the petroleum coordinator took into consideration the transportation situation and recommended only 3,656,800 barrels output daily, although Michigan's allocation subsequently was increased 10,000 barrels.

The Bureau of Mines calculation was based, as usual, on the indicated requirements for motor fuel, principal product of the industry. The bureau estimated that the total demand for gasoline during April would amount to 55,700,000 barrels (1,800,000 daily), a decrease of 2 percent from the actual demand of April, 1941. The agency stated that even after discounting the abnormally high demand of April, 1941, the forecast for April, 1942, was about 5,000,000 barrels less than might have been expected if there had been no tire rationing or curtailment in civilian consumption due to readjustments in transportation.

Actual demand for motor fuel in April probably will be materially less than forecast by the bureau, because of adverse developments following the issuance of the forecast. This is indicated by the fact that the petroleum coordinator found it expedient to recommend less crude production than the bureau originally calculated as necessary. It is further substantiated by the more recent action of the coordinator in ordering a reduction of 25 percent in deliveries of home heating oils and, effective in the East Coast and Pacific Northwest districts and, effective April 16, an increase to 33-1/3 percent in the curtailment of deliveries of gasoline to service stations in the East Coast and Pacific Northwest districts. (Card rationing probably will be delayed until summer.)

Service station operators throughout the country are reporting that gasoline sales have dropped off because of the tire situation, and that some motorists discontinued using their cars on April 1 because they felt that their tires were too thin to justify paying $10 or $15 for 1942 license plates.

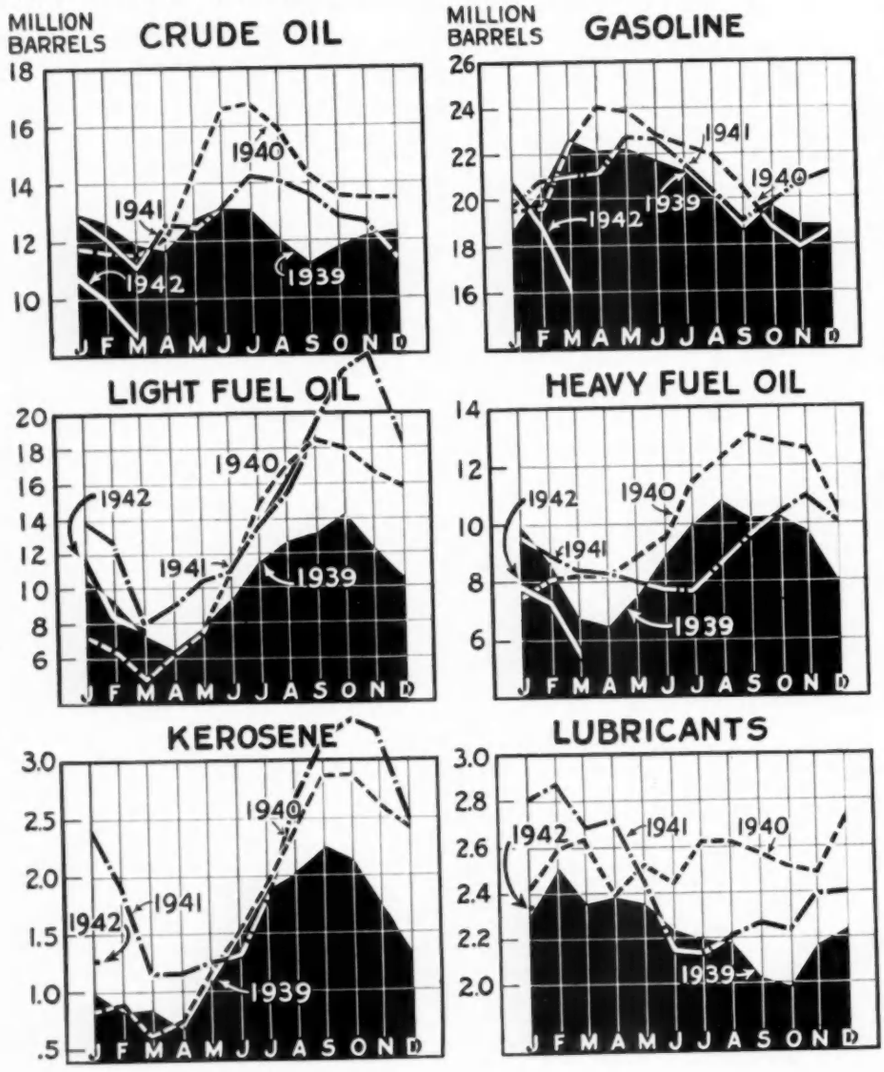
Stocks of gasoline currently are comparatively large, except on the East Coast, in reflection of the curtailment of demand. On April 4, 1942, stocks of finished and unfinished gasoline in the United States totaled 105,149,000 barrels, the American Petroleum Institute reported, having been brought down somewhat from the all-time record level of 107,229,000 barrels as of March 14. The April 4 stocks were more than 6,000,000 barrels (6.3 percent) in excess of those held a year previously. But demand having fallen below the trend of a year ago, the present stocks are about 11 percent larger than those held a year ago on the basis of days' supply at the prevailing rates of use.

The national inventory of motor fuel at the end of March represented 56.8 days' supply on the basis of indicated daily average demand in April, and as shown in an accompanying chart, that was more than a normal supply. It was about the same number of days' supply as on March 31 of 1938 and less than on March 31, 1940, but stocks were excessive in both 1938 and 1940, as attested by weak markets and depressed prices. The 56.8 days' supply as of March 31, 1942, compared with only 51.2 days' supply on March 31, 1941.

By districts, the present stocks of finished and unfinished gasoline compare with those on hand a year ago as indicated in a table presented herewith.

Stocks of Crude and Refined Oils in East Coast District Seriously Below Normal

Curves show inventories at end of month in recent years, as reported by Bureau of Mines



District	Gasoline Stocks March 31, 1941 (Bbls.)	Gasoline Stocks April 4, 1942 (Bbls.)	Percent Change from Year Ago
East Coast	21,113,000	17,319,000	—17.9
Appalachian	3,628,000	3,747,000	+3.2
Ind.-Ill.-Ky.	20,782,000	23,250,000	+11.8
Okla.-Kan.-Mo.	9,230,000	10,327,000	+11.8
Inland Texas	2,965,000	3,859,000	+30.1
Texas Gulf	17,061,000	20,842,000	+22.1
La. Gulf	3,681,000	4,553,000	+23.6
Ark.-N. La.	853,000	1,237,000	+45.0
Rocky Mt.	2,493,000	2,553,000	+2.4
California	17,116,000	17,462,000	+2.0
Total U. S.	98,922,000	105,149,000	+6.3

Wildcat Drilling in 1941

With Some Comments on Discovery Rate

By FREDERIC H. LAHEE
Chief Geologist, Sun Oil Company, Dallas, Texas

THIS paper reviews data on wildcat drilling for the seventh consecutive year.[1] The states from which information was available are indicated in Figure 1.

We have continued to use the definition of a wildcat as a hole drilled completely outside the known boundaries of pools already developed, and far enough from producing areas to be essentially a test of new possibilities. Generally speaking, such a hole would be at least 2 or 3 miles from production; but, where subsurface conditions may change within short distances, as in the case of lensing sands and salt-dome structures, and where, consequently, predictions based on the known may turn out to be greatly in error, a test hole may be regarded as a wildcat even if it is only ½ or ¾ mile from production or from an abandoned dry hole. It is important to note that this does not make *distance* from a pool the sole factor in the definition; nor should it be. Often a hole to be drilled within less than a mile from production is just as much a wildcat, is just as much a financial risk, and should receive just as much encouragement in the search for new reserves, as a hole two or three miles from production. In every case the degree of uncertainty of the geological conditions should be taken into consideration.

In compiling the data, questions have arisen as to just how to classify footage drilled in certain wells which are strictly neither dry holes nor producers from top to bottom. For instance, within the boundaries of a pool a hole may be drilled below the lowest pay zone in search of some unknown new "pay." In the sense that it is exploring for deeper untested possibilities, its footage drilled below the lowest known "pay" is wildcat. It might be called a semi-wildcat. If it discovered oil or gas in a deeper formation this extra footage might be listed as semi-wildcat discovery footage; and if, on the other hand, it failed to find a deeper "pay," the depth drilled below the lowest producing formation would then be termed semi-wildcat dry footage. For the most part this kind of semi-wildcat footage has been omitted from our statistics. It comprises only a small percentage of the whole.

A somewhat similar case is that of a wildcat well drilled through one or more prospective pay zones to a considerably greater depth and then plugged back to completion as a producer. However, in a hole of this kind, since the total depth would be charged against the cost of the completed producer, we have listed this total depth in the column for producers.

A further question was raised this year as to whether actual footage drilled within the calendar year should be the basis of footage drilled or whether, as in past reports, the total footage of all the holes actually completed or abandoned within the calendar year should be used. We have continued the latter course, first, in order that this year's figures may be more properly comparable with the figures in the earlier reports; second, because the former method requires more detailed analysis on the part of those furnishing the statistics; and third, because we are as much concerned with individual holes, as with footage in these holes, and the former method would involve considerable repetition in the *number* of holes wherever the holes were started in one year and finished in a succeeding year.

On the maps (Figures 1 and 2), numbers in parentheses indicate total footage drilled; figures preceding parentheses indicate the number of holes drilled; figures above the cross line are for producing wells, i.e., oil, oil and gas, distillate and gas, and gas; and figures below the cross line are for dry holes.

In the states covered in this review, as shown in Figure 1, and listed in Table 1, during 1941 a total of 11,615,085 feet was drilled in 3264 holes, divided as follows:

503 producers...2,047,377 feet
2761 dry holes...9,567,708 feet

This means that 15.41 percent of the holes drilled, and 17.62 percent of the footage drilled, was successful

THE total number of wildcats drilled in 1941, in the states covered by this report, was 3264, and the footage drilled was 11,615,085, as contrasted with 3038 holes and 10,144,870 feet, respectively, in 1940. The average depth of hole increased from 3339 feet to 3559 feet for all states covered, and from 4209 feet to 4372 feet in the southern states.

This resume on wildcatting is followed by a study of discovery rate in the eleven states of Arkansas, California, Illinois, Indiana, Kansas, Louisiana, Michigan, Mississippi, New Mexico, Oklahoma, and Texas. Discovery rate is measured by the relations between wildcatting and the discovery of new reserves during the last half decade. Except for a slight rise, in 1941, in the curves expressing rate of discovery, there has been a decline since 1937. The facts are a challenge to the industry not only to expand exploration, but also to promote research which may in any manner improve or revise our present methods of looking for oil.

The writer acknowledges with thanks the kind assistance and cooperation of the following gentlemen in compiling data for this summary: A. P. Allison, L. J. Bateman, A. H. Bell, K. E. Born, N. Burnett, D. H. Cardwell, C. H. Coldwell, R. J. Cullen, M. H. Funk, G. C. Gester, George E. Heap, E. A. Koester, C. S. Lavington, G. D. Lindberg, A. M. Lloyd, R. W. Mallory, Graham B. Moody, D. J. Munroe, G. W. Myers, Jack Parker, Howard C. Pew, C. H. Row, G. C. Sleight, L. C. Smith, and E. B. Wilson.

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[1] See this Bulletin, Vol. 21, pp. 1079-82; Vol. 22, pp. 645-48, 1231-35, 1236; Vol. 23, pp. 789-94; Vol. 24, pp. 953-58; and Vol. 25, pp. 997-1003, 1938, 1939.

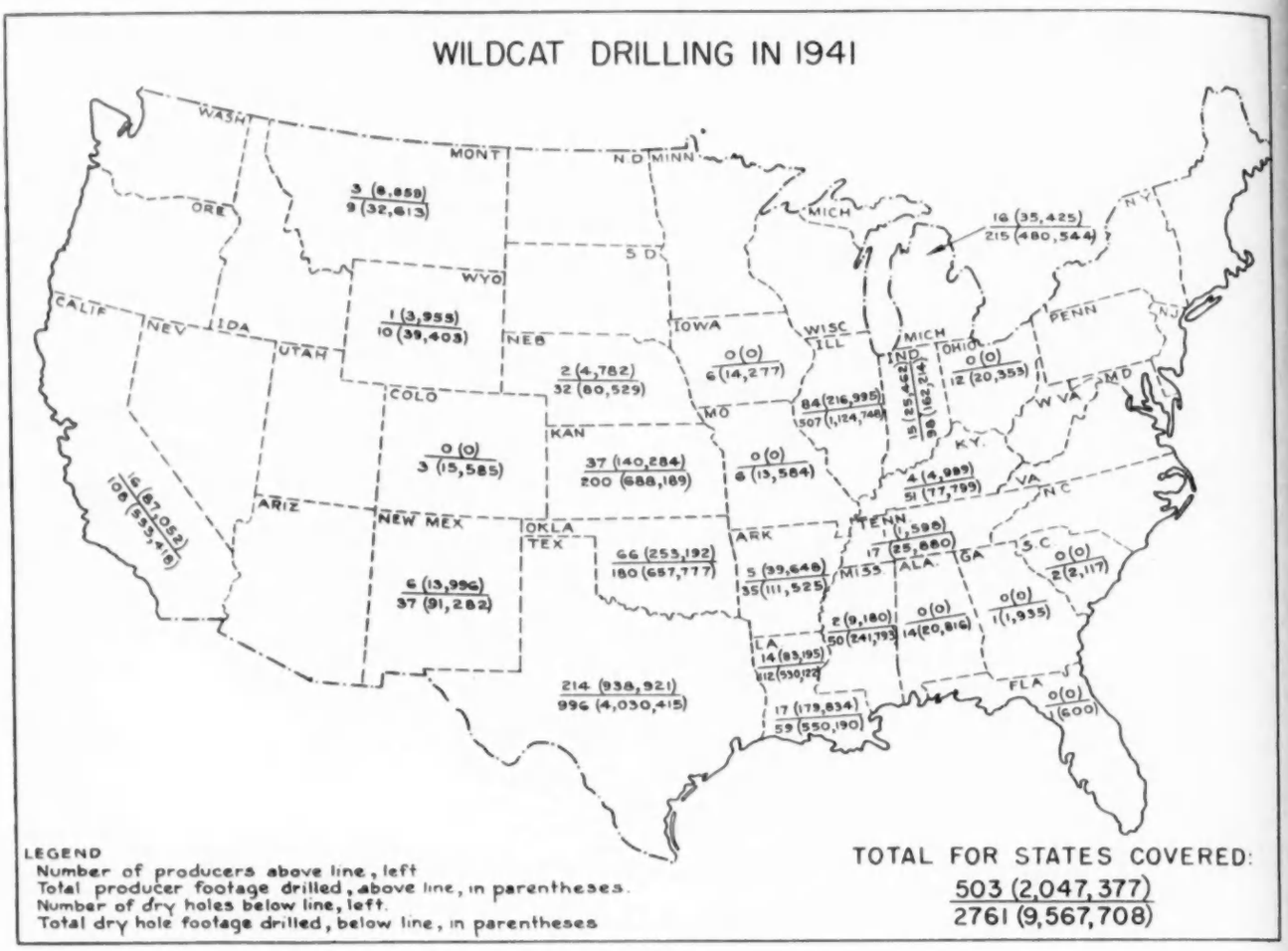

FIGURE 1

in 1941. One producer foot was drilled for every 4.66 feet of dry hole. One discovery well was drilled for every 5.48 dry holes. The average depth of hole was 3559 feet.

In the southern states district (Figure 2), in 1941, a total of 6,843,749 feet was drilled in 1563 holes, divided as follows:

258 producers...1,264,774 feet

1305 dry holes...5,578,975 feet

In this area, then, 16.51 percent of the holes drilled, and 18.48 percent of the footage drilled, was successful. One producer foot was drilled

TABLE 1

Number of Oil Wells, Gas Wells, and Dry Holes Drilled as Wildcats in 1941

STATE	OIL DISCOVERY		GAS DISCOVERY[1]		DRY		Total Number of Holes	Total Footage Drilled	Average Depth of Hole in Feet[2]
	Number of Holes	Footage Drilled	Number of Holes	Footage Drilled	Number of Holes	Footage Drilled			
Alabama	...	...	..	.....	14	20,816	14	20,816	....
Arkansas	4	30,734	1	8,914	35	111,525	40	151,173	3779
California	13	74,611	3	12,441	108	553,418	124	640,470	5165
Colorado	...	.....	..	.....	3	15,585	3	15,585	....
Florida	...	.....	..	.....	1	600	1	600	....
Georgia	...	.....	..	.....	1	1,935	1	1,935	....
Illinois	83	214,340	1	2,655	507	1,124,748	591	1,341,743	2270
Indiana	13	23,930	2	1,532	98	162,214	113	187,676	1661
Iowa	...	.....	..	.....	6	14,277	6	14,277	....
Kansas	33	123,831	4	16,453	200	688,189	237	828,473	3494
West Kentucky	4	4,999	..	.....	51	77,799	55	82,798	1505
Louisiana	18	175,927	13	87,102	171	1,080,312	202	1,343,341	6650
Michigan	8	13,407	8	22,018	215	480,544	231	515,969	2234
Mississippi	2	9,180	..	.....	50	241,793	52	250,973	4826
Missouri	...	.....	..	.....	6	13,584	6	13,584	....
Montana	1	2,065	2	6,794	9	32,613	12	41,472	....
Nebraska	2	4,782	..	.....	32	80,529	34	85,311	2509
New Mexico	5	11,126	1	2,870	37	91,282	43	105,278	2406
Ohio, Northwest	...	.....	..	.....	12	20,353	12	20,353	....
Oklahoma	54	209,671	12	43,521	180	657,777	246	910,969	3703
South Carolina	...	.....	..	.....	2	2,117	2	2,117	....
Tennessee	...	.....	1	1,598	17	25,880	18	27,478	....
Texas	176	731,678	38	207,243	996	4,030,415	1,210	4,969,336	4106
Wyoming	...	.....	1	3,955	10	39,403	11	43,358	....
Total	503	1,630,281	87	2,047,377	2,761	9,567,708	3,264	11,615,085	3559

[1] Gas and distillate wells, of which there were 27, are included in this column.
[2] Averages have been recorded here only for states where more than 25 holes were drilled in 1941.

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FIGURE 2

TABLE 2
Comparative Statistics for All States Shown in Figure 2

	PRODUCERS DRILLED				DRY HOLES DRILLED				Total Number Wildcats Drilled	Average Depth of Hole (Feet)	No. of Dry-Hole Feet Drilled for Each Producer Feet
	Holes		Footage		Holes		Footage				
	No.	Percent	Feet	Percent	No.	Percent	Feet	Percent			
1938...	200	13.6	984,262	17.4	1,271	86.4	4,667,402	82.6	1,471	3,842	4.74
1939...	161	12.6	779,345	14.8	1,113	87.4	4,501,669	85.2	1,274	4,145	5.90
1940...	187	12.8	919,506	14.9[1]	1,279	87.2	5,251,273[1]	85.1[1]	1,466	4,209[1]	5.71[1]
1941...	258	16.5	1,264,774	18.4	1,305	83.5	5,578,975	81.6	1,563	4,372	4.41

[1] See Bulletin of the American Association of Petroleum Geologists, Vol. 25, p. 1938, where corrections are mentioned for these figures as they appeared in Table II, p. 1001, of the same volume.

for every 4.41 feet of dry hole. One discovery well was drilled for every 5 dry holes. The average depth of hole was 4372 feet. For comparison with statistics for this same area in 1938, 1939, and 1940, see Table 2.

Selection of the location for a wildcat well may be based on geology (surface geology, subsurface geology, trend along known structural or stratigraphic conditions, local or regional, or shallow exploratory drilling); or it may be based on geophysics (exploration by seismograph, torsion balance, gravity meter, magnetometer, et cetera); or it may be based on some non-technical suggestion or requirement, such as "creekology," "hunch," "doodlebug," promotion, lease obligation, reported showing of oil or gas in holes previously drilled, et cetera. In many cases the reason for choosing the location cannot be ascertained.

In Table 3 are listed the reasons for drilling the wildcats in 1941 using the best information available from men familiar with such statistics, each in his own state or district. According to these figures, 471 wildcats drilled on technical advice (geology and (or) geophysics) were successful (oil or gas), and 1928 were dry; 30 holes located for non-technical reasons were producers, and 771 were dry; 2 producers and 62 dry holes were located for reasons unknown. These figures show that 19.5 percent of the holes drilled on technical advice were producers as contrasted with 3.7 percent successful in the case of the holes located without technical advice. Therefore, in 1941 locations based on technical recommendations were more than 5 times as successful as those drilled without such advice. In the southern states (Figure 2), 3.5 percent of the wildcats, located without technical advice, were producers, whereas 19.8 percent of the holes located on technical advice were producers.

Comparing last year's figures[2] with figures for 1941, we note the following conspicuous changes.

1. There was a considerable increase in wildcat drilling in California (up from 104 holes in 1940 to 124 holes in 1941); in Texas (up from 1091 holes in 1940 to 1210 holes in 1941); in Kansas (up from 145 holes in 1940 to 237 holes in 1941); in Louisiana (up from 174 holes in 1940 to 202 holes in 1941); and in Illinois (up from 523 holes in 1940 to 591 holes in 1941).

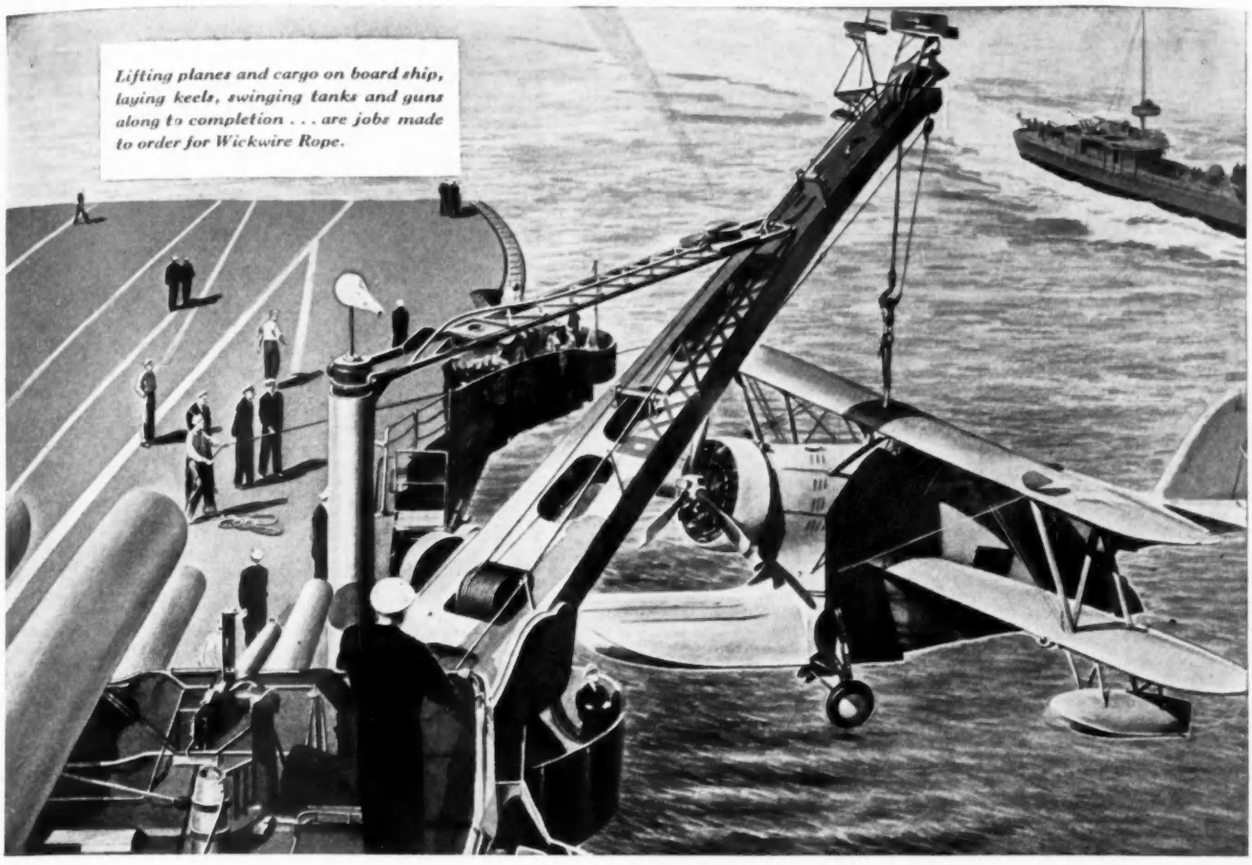
2. There was a conspicuous drop in wildcatting in Michigan (down from 354 holes in 1940 to 231 holes in 1941); and in Mississippi (down from 109 holes in 1940 to 52 holes in 1941).

Footage figures vary roughly in the same proportions both under paragraph 1 and paragraph 2.

3. The number of successful holes (discovery wells) out of the total number of wildcats drilled on technical advice rose from 15.6 percent in 1940 to 19.5 percent in 1941; and, on the contrary, successful holes drilled without technical advice decreased from 4.2 to 3.7 percent of the total number of wildcats drilled without technical advice.

4. Last year and in the preced-

[2] F. H. Lahee, "Wildcat Drilling in 1940," Bull. Amer. Assoc. Petrol. Geol., Vol. 25, No. 6 (June, 1941), pp. 997-1003; and note corrections mentioned ibid., pp. 1938, 1939, in the Oct. number.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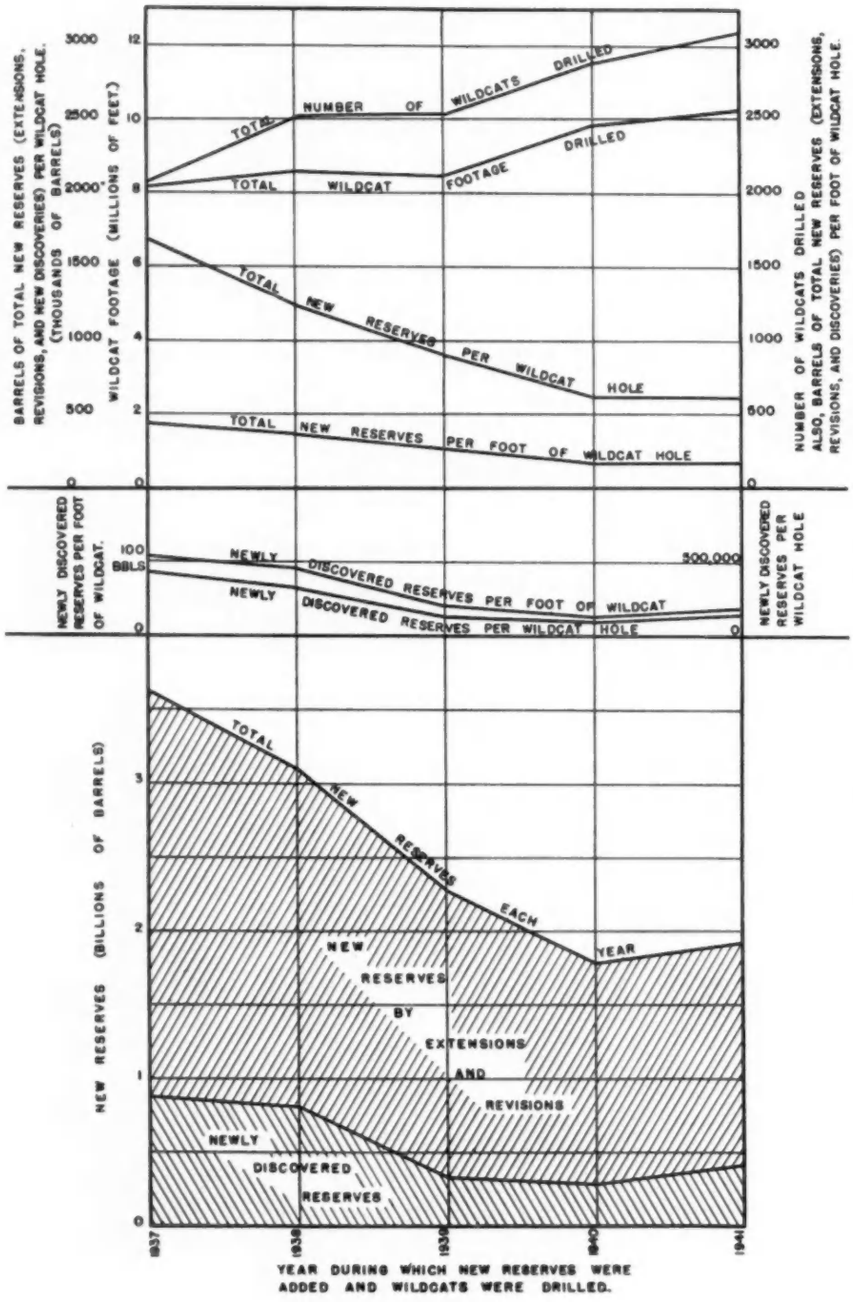
BARRELS OF TOTAL NEW RESERVES (EXTENSIONS, REVISIONS, AND NEW DISCOVERIES) PER WILDCAT HOLE. (THOUSANDS OF BARRELS)
WILDCAT FOOTAGE (MILLIONS OF FEET)
NUMBER OF WILDCATS DRILLED ALSO, BARRELS OF TOTAL NEW RESERVES (EXTENSIONS, REVISIONS, AND DISCOVERIES) PER FOOT OF WILDCAT HOLE.
TOTAL NUMBER OF WILDCATS DRILLED
TOTAL WILDCAT FOOTAGE DRILLED
TOTAL NEW RESERVES PER WILDCAT HOLE
TOTAL NEW RESERVES PER FOOT OF WILDCAT HOLE
NEWLY DISCOVERED RESERVES PER FOOT OF WILDCAT.
BBLS
NEWLY DISCOVERED RESERVES PER FOOT OF WILDCAT
NEWLY DISCOVERED RESERVES PER WILDCAT HOLE
500,000
NEWLY DISCOVERED RESERVES PER WILDCAT HOLE
NEW RESERVES (BILLIONS OF BARRELS)
TOTAL NEW RESERVES EACH YEAR
NEW RESERVES BY EXTENSIONS AND REVISIONS
NEWLY DISCOVERED RESERVES
1937
1939
1938
1940
1941
YEAR DURING WHICH NEW RESERVES WERE ADDED AND WILDCATS WERE DRILLED.

FIGURE 3

ing year[3] we called attention to the fact that, whereas in 1937 there were three times as many discovery wildcats drilled on technical advice as there were drilled for non-technical reasons, in 1938 this factor had decreased to between 2.2 and 3.2 and in 1939 it had further decreased to between 1.5 and 2.2. In 1940, this factor jumped to 3.7, and in 1941 it increased further to over 5. There has been a growing tendency to seek technical advice before selecting a wildcat location, and especially is this true where deep drilling is contemplated.

Wildcatting is the industry's method of seeking new oil. From the experience of 1941 we might say that one wildcat in a little better than six is successful—and this takes into consideration not only all oil discovery wells but also those which discover gas or distillate. After a successful wildcat has been completed as a producer, other wells are subsequently drilled and these gradually outlines the limits of the pool.

Where development is slow, or the pool is large, this process of outlining the pool may require several years. There is always a lag. After the first well has been completed, or perhaps after several wells have been completed, an estimate can be made of the quantity of oil present in the drilled area, and this area is taken as essentially proved. If the pay sand is thick and uniform and fairly even in its permeability, a larger acreage may be regarded as "proved" by the drilling than in the case where the sand is thin, irregular in peremability, and likely to pinch out. If the form and dimensions of the structure, or "trap," are pretty definitely known, an early estimate may be attempted of the quantity of oil present in the whole reservoir, including its undrilled parts. This is an attempt to guess at the ultimate total reserve rather than at the "proved" part of this ultimate total reserve.

Both of these methods of estimating reserves[4] are justified. Each has its definite uses, but *the two should not be confused.* Where estimates are made of *proved* reserves, additions and revisions are periodically necessary, and eventually, after a pool has been completely drilled, the original estimate of the proved reserve plus the subsequent additions and revisions may come somewhere near the total ultimate reserve as estimated near the beginning of development of the pool. However, it is evident that such an early estimate, based on scanty data, is likely to be in error, and the percentage error is likely to be much greater than the percentage error in an estimate of *proved* reserves, made at any given time.

Rate of discovery is the rate at which new oil reserves are discovered, but a graphic picture of this rate may vary considerably according to whether we regard as the oil discovered in any given year the quantity of new oil *proved* by drilling in that year, or the quantity of total new oil estimated to fill the reservoir, or reservoirs, discovered in that year. Although in overlapping periods of several years each, the pictures might be somewhat similar, in single-year intervals there may be wide discrepancies between the rate of discovery calculated in the two ways, due to lag in development, size of pool, etc.

The suggestion has been offered that a more correct picture of the rate of discovery could be obtained

[3] F. H. Lahee, "Wildcat Drilling in 1939," Bull. Amer. Assoc. Petrol. Geol., Vol. 24, p. 958; and "Wildcat Drilling in 1940," ibid., Vol. 25, p. 1003.

[4] See F. H. Lahee, "This Matter of Estimating Oil Reserves," Bull. Am. Assoc. Petr. Geols., Vol. 25, pp. 164-166, 1941.

TABLE 3
Basis for Locating Wildcats Drilled in 1941

STATE	Geology		Geophysics[1]		Geology and Geophysics		Sundry Non-Technical		Unknown		TOTAL	
	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry
Alabama	...	3	...	...	..	...	..	11	...	...	...	14
Arkansas	...	21	5	8	..	...	..	6	...	...	5	35
California	10	59	6	5	..	20	..	19	...	5	16	108
Colorado	...	1	...	1	..	...	..	...	...	1	...	3
Florida	...	...	...	...	..	...	..	1	...	...	...	1
Georgia	...	...	...	...	..	...	..	1	...	...	...	1
Illinois	56	240	28	63	..	6	..	173	...	25	84	507
Indiana	13	69	...	5	2	6	..	16	...	2	15	98
Iowa	...	4	...	1	..	...	..	1	...	...	...	6
Kansas	22	81	8	24	1	11	6	84	...	...	37	200
West Kentucky	4	35	...	2	..	...	..	14	...	...	4	51
Louisiana	8	59	22	87	1	2	..	22	...	1	31	171
Michigan	9	107	...	...	..	...	7	108	...	...	16	215
Mississippi	...	9	1	12	1	8	..	20	...	1	2	50
Missouri	...	3	...	2	..	...	..	1	...	...	...	6
Montana	2	2	...	...	..	2	..	1	1	4	3	9
Nebraska	2	7	...	6	..	...	..	19	...	...	2	32
New Mexico	4	20	...	2	1	3	1	11	...	1	6	37
Ohio, Northwest	...	6	...	...	..	...	..	5	...	1	...	12
Oklahoma	30	89	30	44	..	2	6	45	...	...	66	180
South Carolina	...	...	...	...	..	...	..	2	...	...	...	2
Tennessee	...	10	...	2	..	...	1	5	...	...	1	17
Texas	140	546	43	173	22	51	9	206	...	20	214	996
Wyoming	...	9	...	...	..	...	..	...	1	1	1	10
Total	300	1,380	143	437	28	111	30	771	2	62	503	2,761

[1] Including Geochemistry

by annually relegating back to the year of discovery the reserves subsequently uncovered each year by drilling; but this would not only involve an enormous amount of work, but also, in the end, as far as we can see it, there would be little gained. For of what particular value would it be for us to know, *merely as a means of gauging discovery* rate, that a reserve of over 4 billion barrels of oil was found in 1930 in the East Texas field? Of more significance—again, only as applied to the study of discovery rate—is the quantity of new oil made available each year as drilling of this field progressed. We repeat that, while there *are* real and important reasons for making early estimates of total ultimate reserves in a pool, we believe that the soundest method of measuring rate of discovery must be based on new reserves as proved by drilling.

With this preamble behind us, let us examine statistics on proved reserves and wildcatting for the last five years.[5] Since complete data are not available for all states, we shall limit the succeeding discussion to the following 11 states as a group: Arkansas, California, Illinois, Indiana, Kansas, Louisiana, Michigan, Mississippi, New Mexico, Oklahoma, and Texas. As may be seen by comparing certain items in Table 5 and 6 with the data in Table 4, these 11 states together include a large proportion both of the proved oil reserves and of the wildcatting activities of the country.

Table 4 requires no special comment.

Table 5 lists statistics on wildcat drilling in the area of the 11 states mentioned. These wildcats have been classified according to the reason for locating them where they were drilled, and also according to whether they were completed as producers of oil or gas, or were abandoned as dry holes. In the five-year period, 16.88 percent of the wildcats located on a technical basis (geology or geophysics or both) were producers; 5.45 percent of the wildcats located on the basis of various non-technical reasons were producers; i.e., where the reason for the location was known, in collecting the statistics, those wildcats located on a technical basis were more than three times as successful as those located without technical advice.

During this five-year period, 5.43 feet of dry hole were drilled for every foot drilled in the producer wildcats.

There are several ways of estimating the degree of success of wildcat drilling. We have called successful those wildcat holes (and the footage drilled in these holes), which were completed as commercial producers. However, we can consider wildcatting in relation to oil reserves discovered by this class of drilling. In Table 6, under "A," are recorded the proved reserves as of January 1 in each of the indicated years, and for the eleven-states area under discussion. Under "B" is shown, for each January first, the net change in estimated proved reserves since the preceding January first, allowing for production during that 12-months period. Under "C" are the new reserves which are directly attributable to wildcat discoveries made during the year. Under "D" are the revisions and additions of estimated reserves in fields already discovered in previous years, these revisions and additions having been made on the basis of new information obtained through development during the year indicated.

As we have explained above, the reserves in group "D" might be assigned back to the year of discovery, but due to the present incompleteness of available statistics,

TABLE 4

	Estimated Proved Reserves in U. S. at Beginning of Year, Barrels[1]	Wildcats Drilled During Year Indicated[1]	
		Number	Footage
1937	13,063,000,000	2224	8,387,615′
1938	15,507,268,000	2638	8,860,484′
1939	17,348,146,000	2589	8,624,602′
1940	18,483,012,000	3038	10,144,870′
1941	19,024,515,000	3264	11,615,085′
1942	19,589,296,000	....	.....

[1] These figures, for reserves include the entire United States, but for wildcats they include all states regarded as prospective for oil except New York, Pennsylvania, Eastern Ohio, West Virginia, and Eastern Kentucky.

The above figures on reserves were taken from "Facts and Figures", 7th ed., p. 74, published by the American Petroleum Institute, 1941. Figures for reserves as of January 1, 1942, were taken from a recent press release from the American Petroleum Institute. The data for wildcats were taken from the articles printed in the A.A.P.G. Bulletin, and listed in footnote.

[5] Information on proved reserves is taken from the American Petroleum Institute Quarterly, in April of each year from 1937 to 1942 inclusive. Information on Wildcatting is from papers listed in footnote 1.

TABLE 5

Statistics on Wildcats in Area Under Consideration[1]

	LOCATED ON TECHNICAL BASIS				NON-TECHNICAL LOCATION				UNKNOWN BASIS FOR LOCATION				TOTAL				GRAND TOTAL FOOTAGE			No. of Feet in Dry Holes Drilled per Foot in Producing Wildcats
	Producers		Dry Holes		Producers		Dry Holes		Producers		Dry Holes		Producers		Dry Holes		No. of Wildcats	Producers Footage	Dry Wildcats Footage	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
1937	214	16.05	1119	83.95	17	5.80	276	94.20	48	9.21	473	90.79	279	12.99	1868	87.01	2147	1,188,366	7,002,875	5.89
1938	283	17.93	1295	82.07	43	7.61	522	92.39	17	4.67	347	95.33	343	13.68	2164	86.32	2507	1,482,889	7,119,867	4.80
1939	216	13.33	1404	86.67	43	6.15	656	93.85	10	4.85	196	95.15	269	10.65	2256	89.35	2525	1,107,395	7,344,424	6.63
1940	309	15.69	1660	84.31	35	4.57	731	95.43	11	8.09	125	91.91	355	12.37	2516	87.63	2871	1,397,496	8,416,015	6.02
1941	463	20.17	1832	79.83	29	3.92	710	96.08	0	0	55	100.00	492	15.92	2597	84.08	3089	2,023,184	9,222,217	4.55
Total for '37-'41	1485	16.88	7310	83.12	167	5.45	2895	94.55	86	6.70	1196	93.30	1738	13.22	11,401	86.78	13,139	7,199,330	39,105,398	5.43

[1] This area includes California, New Mexico, Texas, Oklahoma, Kansas, Arkansas, Louisiana, Mississippi, Illinois, Indiana, and Michigan. Full statistics were not available on the other producing states.

this cannot readily be done. Instead, we may regard both groups of new reserves ("C" and "D") as directly and indirectly resulting from original wildcat discoveries. If, for each year, we divide the newly discovered reserves ("C," Table 6) by the number of wildcats drilled in that year, or by the total wildcat footage drilled in that year we shall have a measure of the degree of success of wildcatting in terms of newly discovered reserves ("H" and "I," Table 6); and if we divide the total new reserves (discoveries plus revisions plus extensions: "E," Table 6) by the number of wildcats drilled, or by the total wildcat footage drilled, we shall have a measure of the degree of success of wildcatting assisted by outpost drilling ("J" and "K," Table 6). Under "H" and "I" the measure is short. Under "J" and "K," the measure may be too large or too small. In any case, there is an unavoidable error in estimating *rate of discovery*, or degree of success in wildcatting, measured in terms of new reserves; but the figures obtainable by these methods, as above described, are a significant index. They reveal a regular drop in rate of discovery through the first four years with a flattening of the curve through 1941, whichever way we compare the data. (See Figure 3).

What is the significance of this falling rate of discovery? It cannot be due to lessened activity in wildcatting, for, except for a temporary set-back in 1939, the number and average depth of wildcats has increased through the five-year period. (See Figure 3). Nor can it be due to any lessened application of technical methods in exploration, for there has been a steady advance in the refinement and use of techniques. We believe it is due mainly to the growing difficulty of finding new geological traps for oil. The more conspicuous and easily mapped structures have long ago been located and drilled. Also, drilling has tested most of the shallower prospects on these structures. Remaining undiscovered reserves are largely either (1) in regions not yet explored; or (2) they are in reservoirs deeper than those reached on already exploited structures and often unconformably related to the strata that contain the known reserves; or (3) they are in reservoirs of the stratigraphic pinch-out type, which can seldom be located by surface observations.

To look for oil under the first of these conditions will need increased activity in exploration and in drilling in areas which do not now produce oil, but which are rated as having some prospects.[6] To look for oil under the second of the conditions just mentioned will require deep wildcatting and also deeper drilling on known structures or within the confines of known pools. To look for oil under the third condition will require the drilling of many holes, some of which may be purely informational, but all of which will help in locating the positions and trends of subsurface stratigraphic pinch-outs. If we are to maintain a satisfactory discovery rate, as applied to new reserves, we must become more vigorous than heretofore in our wildcatting campaign. We must show a strongly rising curve in the annual number, and in the annual average depth, of wildcat operations. The picture, as we see it today, is a grave challenge to the industry as a whole to expand its program of exploration and to encourage any branch of research that may give us new or better methods of looking for oil.

[6] See "Possible Future Oil Provinces of the United States and Canada." Edited by A. I. Levorsen. Bull. Am. Assoc. Petroleum Geologists, Vol. 25, pp. 1433-1586. 1941.

TABLE 6

Statistics on Proved Reserves in Area of Eleven States[1]

	1937	1938	1939	1940	1941	1942
A. Proved reserves as of January 1, of year indicated	12,241,885,000	14,664,035,000	16,630,452,000	17,723,393,000	18,226,542,000	18,816,785,000
B. Net change in proved reserves since January 1, of previous year	.....	+2,422,150,000	+1,966,417,000	+1,092,941,000	+503,149,000	+590,243,000
C. New proved reserves discovered during year indicated	896,692,000	805,293,000	337,989,000	280,882,000	423,551,000	.....
D. New reserves added through extensions and revisions of old fields during year indicated	2,739,254,000	2,313,356,000	1,955,507,000	1,505,816,000	1,496,610,000	.....
E. Total new proved reserves added (C+D)	3,635,946,000	3,118,649,000	2,293,496,000	1,786,698,000	1,920,161,000	.....
F. Production during year indicated	1,213,796,000	1,152,231,000	1,200,555,000	1,283,490,000	1,329,918,000	.....
G. Years of remaining proved supply on January 1, of year indicated, based on production of preceding year	11.74 Yrs.[2]	12.08 Yrs.	14.43 Yrs.	14.76 Yrs.	14.20 Yrs.	14.15 Yrs.
H. Newly discovered reserves (C) per wildcat hole drilled in year indicated	417,647	321,217	133,857	97,834	137,115	.....
I. Newly discovered reserves (C) per foot of wildcat hole drilled in year indicated	109.4	93.6	39.9	28.6	37.7	.....
J. New proved reserves (E) per wildcat hole drilled in year indicated	1,693,500	1,243,976	908,315	622,326	621,612	.....
K. New proved reserves (E) per foot of wildcat hole drilled in year indicated	443.88	362.52	271.36	182.07	170.75	.....

[1] This area includes Arkansas, California, Illinois, Indiana, Kansas, Louisiana, Michigan, Mississippi, New Mexico, Oklahoma and Texas. [2] Production in 1936: 1,042,464,000 barrels

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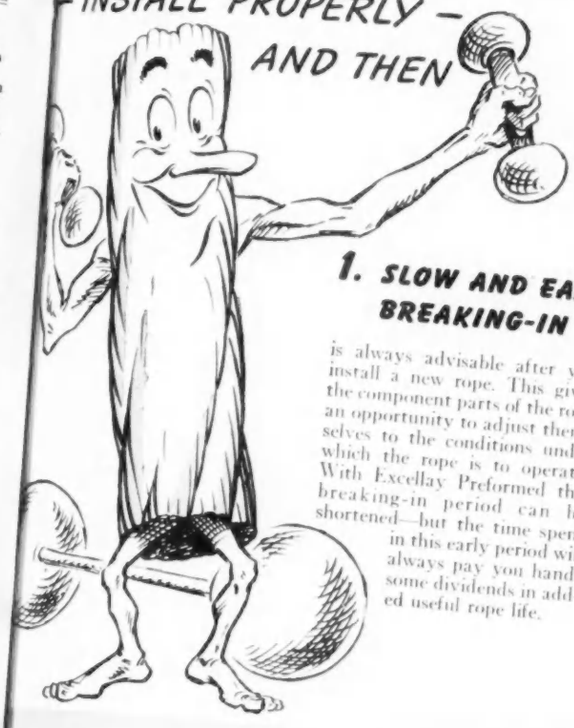

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Striking Expansion in

Geophysical Operations

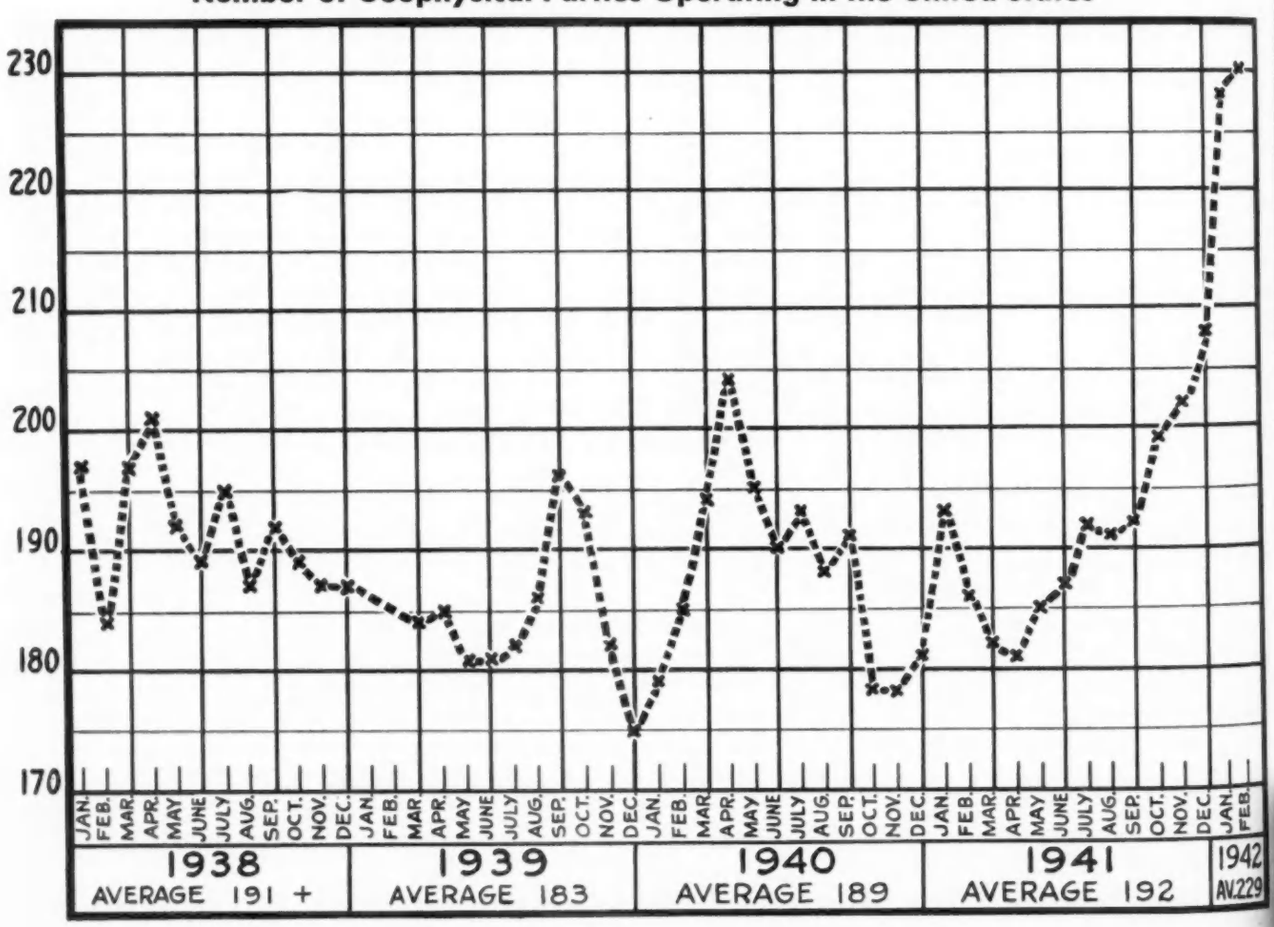
By E. A. ECKHARDT
Vice President, Gulf Research & Development Company

ALONG with the rest of the nation, geophysical prospecting entered the year in the state of limited national emergency proclaimed by the President on September 8, 1940. On May 27, 1941, an unlimited emergency was proclaimed. From this latter date geophysical prospecting has undergone the most striking expansion witnessed in the past five years and possibly over a much longer period. From 181 seismograph parties reported to be operating in the United States in April, 1941, this number has increased to 230 parties for February, 1942, an increase of 49 parties, or of 27 percent. The acceleration has been particularly pronounced in the months since Pearl Harbor and our transition from an emergency to a war status.

Along with, and in support of, our armed forces the oil industry has a job to do in providing the men at the fighting fronts the petroleum products so vital in the mechanized war in which they are engaged. Our domestic reserves are greater than those of any nation, but ample as these seemed in times of peace, they justify no complacency in face of the Gargantuan demands of war. Our reserves will be dissipated not only in fueling and oiling the war machines, but also in providing raw materials for explosives and rubber as well as numerous other materials which go into our war effort.

A part of the job assigned to the industry by the Petroleum Coordinator is the discovery of new oil pools. The report for 1941 of the API Committee on Petroleum Reserves, issued recently, indicates that the new discoveries for 1941 added 429,974,000 barrels to the reserves in the United States. This is only 30.6 percent of the 1,404,182,000 barrels which were produced in 1941 and by which our reserves were depleted during the

Number of Geophysical Parties Operating in the United States



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year. This picture is made somewhat less gloomy by the fact that the reserves were increased an additional 1,538,989,000 barrels by the upward revision of estimates because of extensions of previously discovered pools and by revisions of previous estimates based on other new information. In the ultimate analysis our future supplies depend primarily on the discovery of new pools and the net increase of estimated reserves to the extent of 564,781,000 barrels during 1941 hardly justifies any slackening of the exploration effort.

As it did to many others, the year 1941 brought preference ratings and draft boards into the lives of geophysical operators. In view of the relative youth of the geophysical prospecting business and because of its nature the men engaged in it are predominantly young and of better than average vigor. A large percentage of them were consequently included in the first draft call and practically all of them have now been registered with the Selective Service Boards. In addition, both the Army and Navy have found men with training and experience in geophysical techniques especially well adapted to the handling of various technical military problems and substantial numbers have entered the government service to do such work. These various factors combined have made the personnel problem of geophysical operators exceptionally difficult, since an experienced geophysicist is practically irreplaceable if one is lost to any organization.

In spite of these handicaps the growth of geophysical activity during recent months has been accomplished, a result which testifies to the resourcefulness and vigor of the operators. The A-1-e priority rating, available since very early this year, has been a distinct help in keeping the prospecting effort going.

Almost one third of the reserves contributed by oil fields newly discovered in 1941 are located in Texas, which contributed 170,364,000 barrels to the total. Illinois is second with 62,946,000 barrels and Oklahoma a close third with 58,911,000 barrels. Louisiana was fourth with 47,915,000 barrels and Michigan, Kansas, California and Arkansas rank next in order.

Thirty-nine percent of the 1941 seismograph operations were conducted in Texas, with an average of slightly over 75 parties. The next most active state was Louisiana with an average of 29.4 parties, followed closely by Oklahoma with a 27.2 parties average. Between them these three states account for almost 69 percent of all the seismograph work in the United States.

In California there was an average of 14.9 parties for the year, or about seven and three-quarters percent of the national average. On the West Coast the seismograph activity increased at a steady rate throughout the year, the total increase being close to 50 percent. In fact, the aggregate increase for the United States was quite generally participated in by all areas, the gain in no area being accomplished at the expense of another.

One quarter of all seismograph operations are widely scattered over the country in Kansas, Illinois, Indiana, Ohio, Kentucky, Nebraska, Wyoming, Montana, Pennsylvania, West Virginia, Florida, Alabama, Mississippi and Arkansas.

Since the turn of the year Southern Arkansas has become the scene of an intensive seismograph campaign with 23 parties reported operating there in February.

The chart of seismograph activity here presented covers the period since January, 1938. The outstanding feature of this chart is the rapid rise of activity from the Spring of 1941 to the latest date for which complete data are at hand. At the all-time peak of September, 1937, a total of 254 parties was reported. The new February, 1942, peak is 24 parties short of this.

Although the seismograph remains, as it has been for at least a decade, the backbone of the geophysical prospecting effort, the current surge in this activity is reflected by parallel developments in gravity operations. During 1941 the number of gravimeter parties which were operated averaged somewhat above 54. The peak number was 61 (April) and the lowest 50 (January and September). Since the first of the current year the number of gravimeter parties reported has been at about the peak levels attained in 1941.

An average of 19.1 magnetometer parties was operated during 1941. About half of these worked in Texas. Magnetometer work declined gradually in the course of the year, but has picked up substantially in the early months of 1942.

Geochemical and electrical work of various kinds and torsion balance operations were carried out on a restricted scale, some of them sporadically. Their sum total falls far short of the volume attained by any of the methods reported on more fully.

A great deal of discussion is heard wherever oil men gather and much is being written about the better adjustment of the prospecting effort to the war needs of the country. It has been proposed that exploration be intensified in areas close to centers of consumption. Since the advantage to the discoverer of such discoveries has always been great, it is probable that failure heretofore to explore these areas more intensively has been due largely to the low regard in which the prospects of such areas were held. In spite of the special circumstances arising from the dislocations attending the war, it would seem the soundest policy to search for oil where the prospect of discovering substantial quantities seems best. The problem of distribution is more amenable to control than that of lack of supply, even in war-time.

The use of geochemical methods as a rapid means of high-grading large areas has also been proposed as part of a war-adjusted prospecting plan. However attractive the idea of discovering oil rather than potential structural traps for oil may be, the use of no method is justified in an enterprise of such great importance unless its effectiveness or its promise are generally recognized by the professions charged with the conduct of prospecting. However great the hope for geochemical methods as future tools in prospecting may be, neither their prospects nor their acceptance seem to have made any notable progress during 1941.

The suggestion has been made to economize the exploration effort by pooling of geophysical resources by the entire industry. This necessarily assumes that a geophysical examination by any operator conclusively disposes of the prospects of the area. This is contrary to the experience of the industry. I am convinced that such pooling would cripple the entire effort and that while economy of man-power and of materials may seem available, the net effect of such pooling would prove disastrous.

OIL WEEKLY EDITION

BAASH ROSS News

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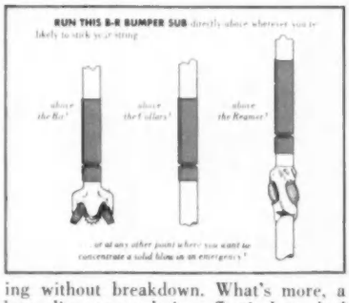
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Baash-Ross Type "E" Autolock Safety Joint

For Drilling Strings

When you're drilling in formations that may cave or heave, the chances are slim against your jarring your way out. So your best chance of saving your string is to *unscrew* it . . . and here's the tool to run—the **Type "E" Autolock Safety Joint!**

This new Baash-Ross development is timed to the minute for modern high-speed deep-drilling operations. It can be used at any point in the drill string . . . is made to rotate in an unscrewing direction without danger of accidental release . . . yet it unscrews quickly and easily *at the will of the operator!*

HOW THIS JOINT IS BEING USED

Operators who have already used this Safety Joint have found a number of important applications for it in their drilling operations.

▶ One spot is a short distance *above* the point where formations have a tendency to cave or heave. When using it this way, of course, the Joint should be placed a sufficient distance above the danger spot so that it will still be in the clear when the full amount of hole has been made before coming out again to change bits. That is, if you plan to make 150 feet of hole before coming out to change bits, the Joint should be placed say 175 feet or more above the danger spot . . . enough to keep the Joint in the clear at all times without leaving too much pipe below the joint to be recovered in an emergency.

▶ A considerable number of operators—particularly those making lots of hole each trip—are using *two* Joints to insure complete safety as well as minimum pipe loss. They place one Joint a short distance above the danger zone, the other a considerable distance above so that it will be in the clear at all times. Then, regardless of whether the pipe sticks just after running in a new bit or near completion of the run, they can always obtain maximum recovery!

▶ Another important application is in drilling-out operations. Here, the Joint is located in the string so that it will always be in the casing *above the shoe*. Then should the pipe stick in open hole, loss is reduced to an absolute minimum.

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The Baash-Ross Type "E" Joint has been built to meet the requirements of the most severe drilling service. A glance at the illustration will show you its simple rugged construction . . . similar to that of the famous Baash-Ross Type "C" Joint for fishing. However, unlike the single shoulder of the "C," the Type "E" incorporates a series of driving shoulders all the way around the circumference, providing *extra* driving area to meet heavy torque loads without tightening.

In addition, the locking shoulders are so designed that when the Joint is made up, they will mate in only the correct position. This eliminates the possibility of overtightening or "freezing" the Joint and insures quick, positive release whenever desired. Packers prevent fluid leakage while drilling and are so designed that SIX unscrewing turns can be effected *without losing the fluid seal.*

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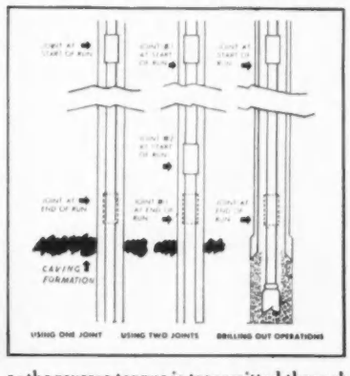
The Type "E" permits reverse rotation, when necessary, under normal conditions,



as the reverse torque is transmitted through the heavy, spring-loaded collar and tapered shoulders. Yet, when release is desired, it requires not more than *half* the torque needed to break a normally made-up tool joint of the same size!

The Type "E" Autolock Joint is stronger than the drill pipe on which it is run—and will safely transmit all driving torques. So when drilling in heaving or caving formations make sure your drill string carries this newest safeguard to cut your pipe losses, increase your drilling safety. Available in all popular pipe sizes from Baash-Ross headquarters in your territory.

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Here are two new Baash-Ross safety tools that give you the protection you need. When run on your regular drilling string, one enables you to *jar* your way out of a dangerous situation . . . the other to *unscrew* your way out. Each has its particular advantages. Read about them . . .

Coordination and Research Hold

Future to Oil Exploration

By JOSEPH A. KORNFELD
Consulting Petroleum Geologist, Wichita, Kansas

WANING rates of oil discoveries for the past four years, coupled with a mounting war demand that will largely hinge on major American oil fields, has caused serious thought among petroleum production leaders. Complicating the problem is the necessity of finding reserves in areas where transportation is available in moving it to market. Moreover, the rarity of discoveries of major accumulations in the past five years is causing concern. Deeper drilling and higher equipment costs introduce economic problems. How to meet them is a challenge to the oil industry.

Emphasis by the federal government on immediate re-evaluation of the American petroleum reserves, to determine the adequacy and actual productive abilities of those reserves to meet the war needs during the next five-year critical period, has also caused revision of old, grooved lines of thought on exploration.

Loss of the Dutch East Indies by the United Nations, heavy losses of tankers in the Atlantic, and a reshuffling of trade routes have caused shifts in sources of supply. Lucrative flush producing areas such as Venezuela and the United States' fields along the Gulf of Mexico are handicapped due to the hazards of water-borne transportation. Greater dependence upon inland reserves, feeding great trunk lines, is certain to follow as the toll of tanker sinkings mounts.

Thus one phase of the problem resolves itself in discovery of important reserves in proximity to big-scale transportation that will remain effective throughout the conflict. Another factor besides the *place utility* is the *quality utility*. Reserves that will furnish huge quantities of both high-octane-gasoline crude and heavy fuel oil, and deliverable to military points and inland refineries constitutes a major problem.

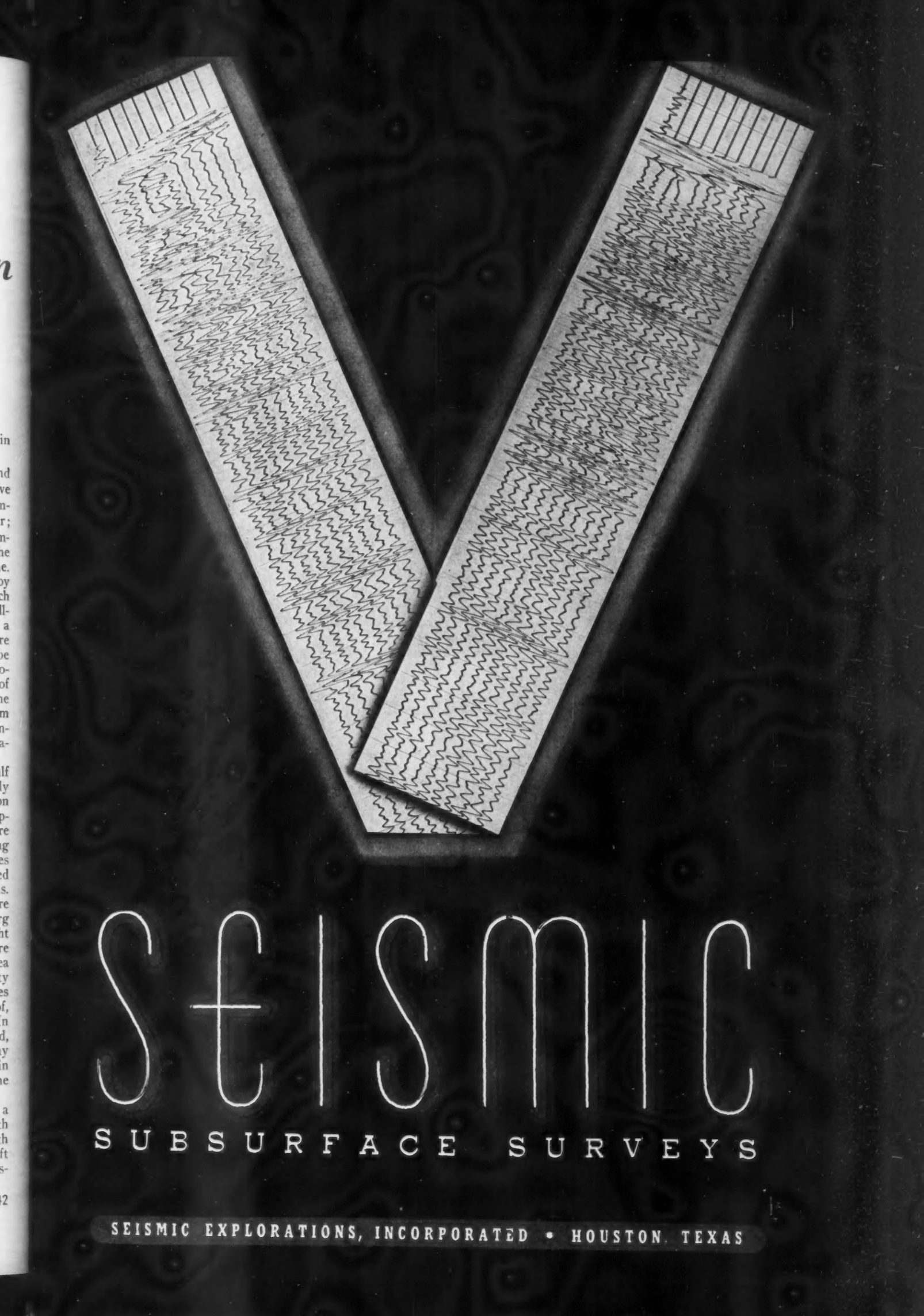
Then in the overall analysis, the industry is faced with the stark realities of having found smaller quantities of reserves. This gradient is steepened with the condition that pool discoveries since 1937 have included extremely few major discoveries, which can be developed into oil market factors.

The inadequacy of the *application* of present-day exploration techniques in finding major pools is well illustrated by the disappointment of the concerted geophysical and drilling program in Mississippi where only one large pool and two minor ones have been found after 30 months. This example is typical of the orthodox policy of hinging exploration around strictly *structural* features. It is self-evident that this restricted type of exploration thought has already reached the saturation point and is apparently on the trend of diminishing returns. It is obvious that there must be brought about a shift in exploration thought to the *stratigraphic* features and to educate the industry personnel to the theories of their accumulation and to the techniques that must be applied to find them. A. I. Levorsen, Tulsa, past president of the American Association of Petroleum Geologists and currently director of that association's research work, has pointed out this necessity as far back as eight years ago; but today the exploration industry has ventured too lightly into the geological techniques that will throw new light on the locale and character of these stratigraphic features and to mold exploration policies about them. No small wonder a waning rate in total discoveries.

The techniques required to find stratigraphic features will resolve themselves in more difficult anomalies than those of the closed contour; it will require greater financial gambles than those surrounding the drilling of the crest of an anticline. It will require regional studies by highly-experienced geologists which the entire organization must be willing to follow. Finally, it will take a number of "stratigraphic core tests" before production might be found. But to build up this program will require a revamping of exploration thought by everyone connected with the company, from the executives down to the paleontologist in the cloistered laboratory.

For example, the upper Gulf Coast of Texas has been closely honeycombed by the reflection seismograph for the search of deep-seated salt domes. Yet, there are anomalies of complicated faulting flanking major structural features that may or may not be associated with wedge-outs of flanking sands. Other piercement domes were islands in the Oligocene Vicksburg seas and near-shore deposits might be found on their flanks. Off-shore sand bars in the Eocene Yegua sea are productive in Hardin County and other sedimentation features offer new possibilities, unheard of, in that province heretofore. In other areas, search for truncated, deep-seated structures, which may be apparent as broad terraces in shallower horizons, illustrate the trend.

To elaborate, the existence of a local structural anomaly at Zenith in Stafford County on the south flank of the Central Kansas uplift was postulated by reflection seis-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mograph about 1936 and later confirmed by shallow core drilling. The first test drilled by Stanolind Oil & Gas Company would have proven barren in the objective Arbuckle dolomite of Cambro-Ordovician age had it been carried to that deep formation. Fortunately it encountered a saturated lens of Misener unconformity sand of lower Mississippian age at 3860 feet. An even more prolific formation—the Viola lime of Upper Ordovician age was found updip by offset drilling months later. Explanation lies in that this productive lens of Misener unconformity sand occurred on the southeast flank of a local structural terrace; in turn, it was underlain by a south-plunging, truncated series of Upper Ordovician dolomites and limestones.

Practical applications of sedimentation studies point the way to success in the discovery and development of stratigraphic features. Scientific objectives of the subsurface geologist should be aligned towards the recognition of the existence, location and character of *unconformity zones;* whether they be *structural, paleontological* or *lithological;* and particularly if a major disconformity has been found such as occur on truncated structures, i.e. Oklahoma City, Big Lake, El Dorado, and the like. Re-examination of well cuttings and cores from deep wells must become an integral part of the routine of the geological department. A research attitude should be developed and encouraged. In this work, regional studies must be systematically carried forward for the purpose of finding key features including overlaps; wedge-outs of potential oil and gas reservoirs; off-shore sand bars; barrier reefs; basal conglomerates; ancient beaches, and change in facies.

In this connection, the construction of many regional cross sections of the geological section from the surface to the basement rocks in an essential and primary duty of the exploration geologist. Regional isopach maps should be prepared of those formations overlying key objectives; and convergence inerval maps of upper horizons based on shallower well control will prove important for recognition of both structural and possibly stratigraphic features where deeper control is few. Greater attention must be concentrated on collection and study of all types of well-survey charts and their relationships to the sedimentation of the objective potential oil horizon.

The new approach will swing from orthodox mapping of a local structure first to regional studies of each structural and depositional basin. The practice of cooperative cross-sections should be encouraged.

Coordination of Exploration

The principal drawback to petroleum exploration in the average oil producing company is the lack of coordination in exploration. Exploration is attempted by the same personnel, that, in many cases, handle routine drilling (not wildcat drilling) field development, and engineering problems, as well as acquisition of acreage and mineral rights. Decisions on technical matters that lie at the core of an exploration program often are approved piece-meal by executives who may not realize the ultimate significance of the expenditure; and needed exploration is either delayed or hindered.

Geological personnel are burdened largely with scouting, routine drilling operations, setting of casing on offset wells, writing of routine reports, checking of rentals of company holdings and reporting on drilling deals for the land department. Red tape takes its steady toll by burdening the exploration personnel with time-consuming, elaborate correspondence and petty detail; it is not realized that the full time of the department should be devoted to strictly exploration effort. In short, success and effectiveness, from a strictly exploration standpoint, is blitzed by round-the-clock detail, like a squirrel in a cage.

In the last analysis, the average geological department is not set up for exploration; it is made up for operating purposes. Its duties slide into the groove of a conglomeration of scouting, land and production purposes. Thus it often becomes a recording department, passive, not aggressive, from the standpoint of discovery effort. Exploration becomes secondary and a sideline where it should be the primary objective. Routine duties, in short, do not allow the geological department necessary time and concentration required for a constant devotion to exploration alignment and thought.

Need Long-Range Planning

Another shortcoming of many company exploration attempts is the lack of long-range planning. Where this extremely important arm of the company should be organized on the basis of permanency, it usually falls into the rut of expediency and strict opportunism, often at the pressure of other departments. Rarely are exploration programs planned for periods of more than a few months. Introduction of new executive leadership into the company invariably brings with it a change in exploration policies and a shift in the direction and character of its discovery effort. A new district is created with the lack of a proper exploration program to precede it—since the exploration personnel and facilities are provided as soon as the district "pays its way." This is a shortsighted policy.

Thus, a company's policies, in the absence of long-range planning, become jackrabbit-like. Decisions of expediency are made, then rationalized later. The cart is put before the horse. Personnel shakeups follow failure to show a satisfactory discovery of new reserves. The land department blames the geological staff, and the geophysical group claims that there was insufficient time in which to thoroughly map the province. The final result is that the organization crawls into its shell, cognizant of its shortcomings.

Create Separate Department

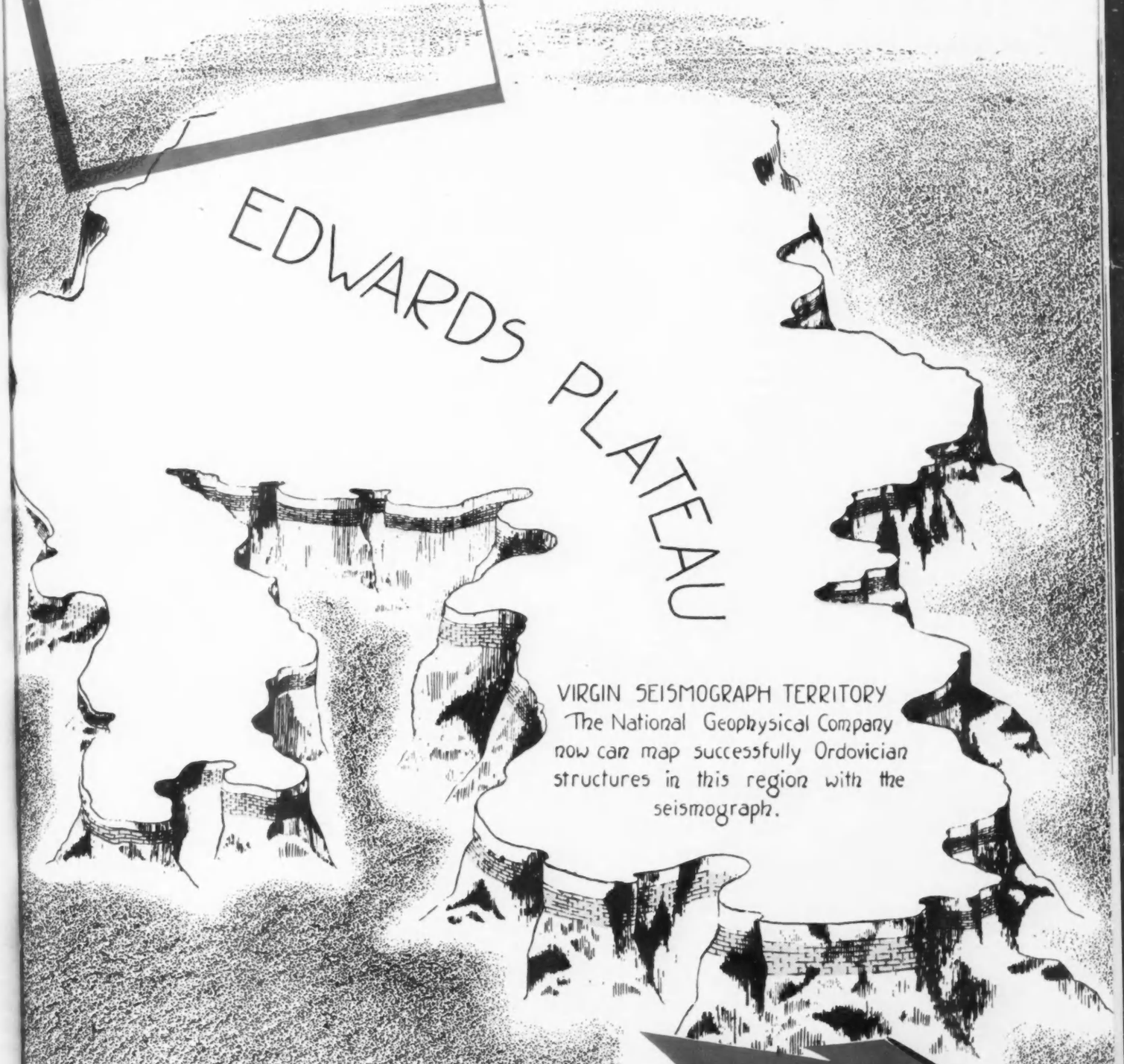
The satisfactory solution lies in the creation of a separate department of exploration, arranged on a par with other branches of the company. Where possible, the program should be based on a long-term basis as a permanent department. Exploration personnel should be freed from time-consuming routine.

Selection of a department head whose experience is well balanced in geologic, geophysical and drilling is essential.

The appropriation for this department should include an ample sum for setting up a technical library and for purchase of both library equipment and a complete set of research books on the subjects of geophysics, petroleum geology, paleontology and sedimentation. An operating fund for purchase of important publications of both state and national geological surveys should be made.

Operating personnel in the general office should include besides the geological, geophysical and surveying staff, a librarian, an expert draftsman and ample stenographic assistance.

We Can Do it HERE'S A "TOUGHIE" THAT NATIONAL HAS SUCCESSFULLY SURVEYED ... *The Edwards Plateau Region*


EDWARDS PLATEAU
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The National Geophysical Company now can map successfully Ordovician structures in this region with the seismograph.

TOUGH, IS RIGHT! The Edwards Plateau in West Texas has a thick surface formation of Cretaceous limestone (Edwards lime) that has made this region a problem area for the Seismograph for years. In fact, most previous seismic surveys here have proved to be unsuccessful. But NATIONAL has developed a technique—plus standout manpower and equipment—which has resulted in *successful* surveys of this region down to and including the Ordovician formations.

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PRACTICAL OPERATING *Hints* FOR

THE practical operating hints for the drilling rig, production man and pipeliner, appearing regularly in these pages, are secured from oil operations everywhere and offer suggestions that will help to improve operating efficiency and safety.

The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, The Oil Weekly, Houston."

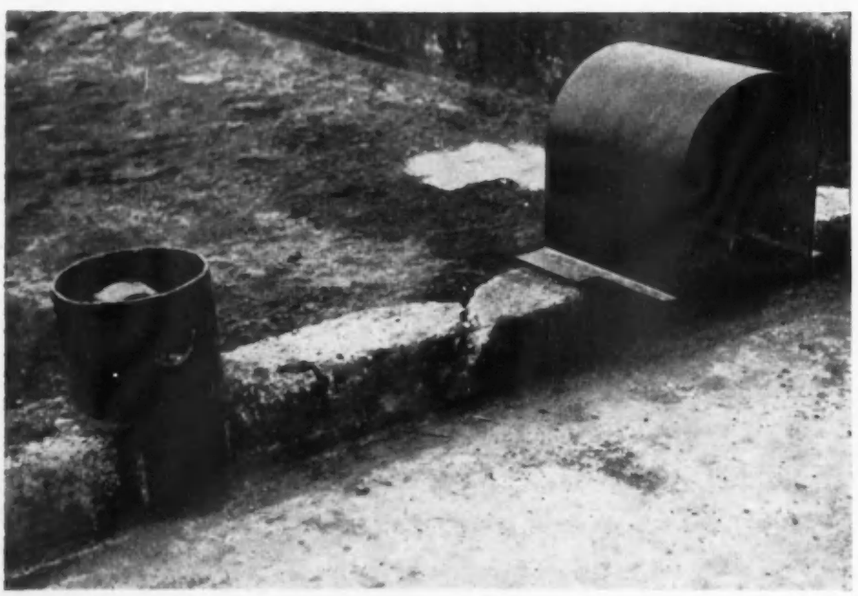
1. POWER CIRCUITS

Outlets Protected by Heavy Metal Shields

THE conduit box or other plug electrical outlet is one of the more vulnerable points around the well, particularly if the well is not equipped with a derrick and the conduits have to be brought up through the floor in a foundation, curbing or other low position.

One company protects these fittings from rain or accidental injury by bumping with a truck or heavy object, through use of short sections of well casing and light sheet steel covers. The lower half of the section of casing is cut away, leaving only two legs which straddle the curbing, while the upper section extends a trifle above the top of the fixture. Under ordinary circumstances this protector need not be moved, as the extension cord plug may be inserted through a round hole previously cut through the side opposite the outlet.

This casing section protects the fixture from physical injury, but to shelter it from rain and heavy fog, a light sheet metal cover, to fit over the curbing similar to the legs of the casing section, covers the entire fitting.



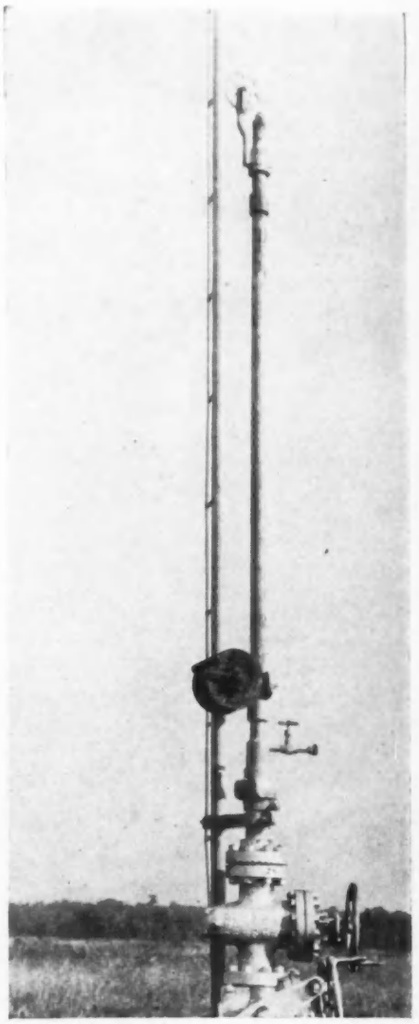
Auxiliary covers for outlets of heavy sheet metal or reworked pipe sections afford maximum protection against weather and truck damage to units without restricting power availability.

2. PARAFFIN

Reel and Gin Pole Speed Scraper Runs

WELLS where paraffin trouble is common are equipped with gin poles and wire-line reels to facilitate running scrapers or other tools for paraffin removal. With suitable apparatus provided at each well head as part of standard equipment, considerable labor is saved during the frequent cleanings.

Above a valve located at top of the tubing is flanged a joint of 2-inch pipe 12 feet long, on top of which is placed a lubricator. Near the flange connection at bottom of this pipe is a small bleeder with valve, within easy reach from the ground to facilitate draining.



Lubricator carries reel and supports ladder for servicing sheave of paraffin-scraper set-up.

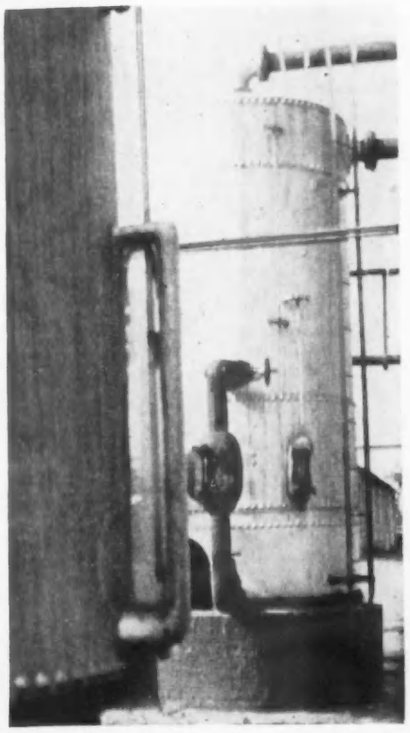
Clamped parallel to the upright lubricator is a taller structure made of welded pipe and provided with steps for a ladder. Near the bottom of this is clamped a wire line reel, consisting of a hand winch and handle for winding. Steps on the ladder go to a height of about 12 feet, more than sufficient to allow manipulating lubricator when rigging up for cleaning.

Each reel is equipped with a wire line of adequate size for running the scraper. By simply threading the line through the lubricator, and connecting the scraper or cleaning tool to it, the apparatus is ready for action, and expediency of the rigging up and cleaning reduces the per well cleaning time.

THE PRODUCTION MAN...

3. GAUGES

Freezing of Glasses Checked by Covers



Dual glass covers provide air space and conserve tank heat as safety for water content.

EVEN though filled with brine, the lower portion of the gauge on treating tanks may freeze, bursting the glass and causing considerable fluid loss before being discovered.

One operator protects the water-filled portion of the gauge with a shield of window glass, supported in a frame attached to the tank, and with recesses into which narrow strips of glass fit and are sealed off with putty or other plastic.

This frame extends below the lower tank connection of the gauge, and above the usual water level, enclosing the glass throughout this portion of its length. The two narrow window glass sections are set into the frame on either side of the gauge, providing an enclosed air space of which a narrow strip of the tank wall forms one side. So long as the tank contents remain above the freezing point, radiation of heat through the tank strip into the space around the gauge glass will help to maintain it at a safe temperature.

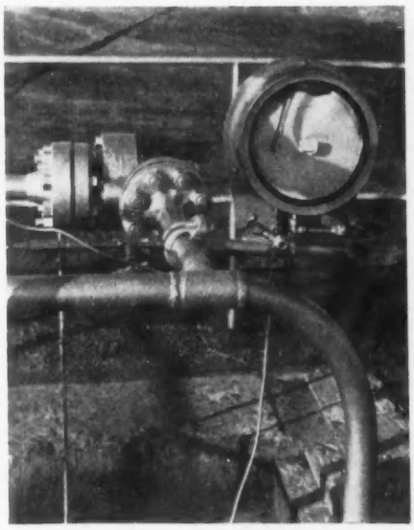
To provide against breaking of the enclosing glass due to changes in air pressures at varying temperatures, the safeguard is provided with a small drip connection which, remaining open, permits air change without allowing sufficient flow to lower the inside temperature appreciably.

4. METERING

Clamp Mounting for Well Recorder Set-up

VARIOUS ways have been used for the mounting of recording meters on flowing wells, but the following method combines simplicity with sturdiness and portability.

It consists of a 2-inch pipe saddle containing a 1-inch outlet clamped to any handy position on the Christmas tree or lead line. The saddle is turned so that a 12-inch nipple of 1-inch pipe screwed into it will project horizontally. A back plate of 3/16- or 1/4-inch steel, cut to approximately the shape of the meter back, is welded to this 1-inch pipe. The meter, bolted to this upright plate, is easily dismounted when the well is to be worked on, as it is necessary only to remove the nuts of the saddle clamp.



Pipe saddle clamped to flow line provides anchorage for mounting of unit at well.

5. GADGETS

Rack for Cooler and Drinking Cup Stock

PROTECTION and care of the water cooler and drinking cups on the company field trucks is a relatively minor detail, yet it can either add to or detract from the comfort of the men, and affect the costs of such accessory equipment.

One company recently devised a strong, neat appearing holder for the water can, and included with it a handy paper cup dispenser which prevents loss or spilling of the stack of cups. The circular framework in which the can rests was made out of miscellaneous reinforcing and sucker rod material. Fitted with a sheet steel bottom, the rack is mounted in the back of the service truck in such a way that the spigot of the water can is turned toward a protected corner, away from possible injury to that vulnerable portion by accidental bumping. A vertical slot just wide enough to allow the spigot to pass through was built into the side of the structure, and prevents the can from turning while resting in its base.

The partially enclosed paper cup rack, welded to the side of the larger rack, is open on the front, and the cups are kept in place by two vertical light steel rods welded into the opening.

Rod rack and light holder for cups protect drinking water unit and aid in conservation.

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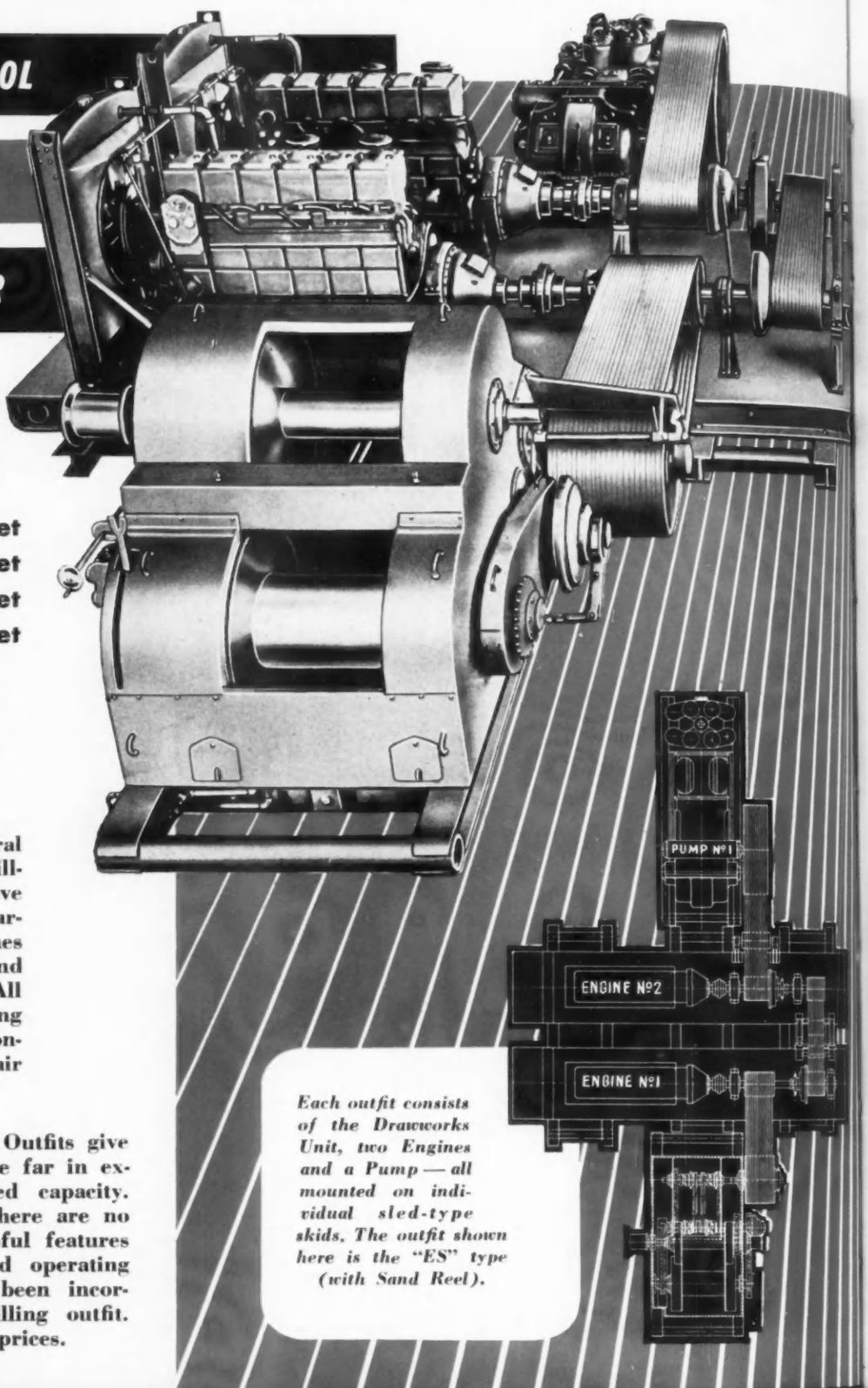

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All four types are identical in general design. The outfits for shallower drilling are lighter in construction, have fewer Texropes, smaller drums, bearings and other dimensions. Engines of smaller horsepower are used and the slush pumps are smaller. All Drawworks Units are roller bearing throughout, equipped for manual control. They may be arranged for air control if so ordered.

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The Week's News

Production of Aviation Gasoline Has Doubled

Production of 100-octane gasoline in the United States is almost twice what it was three months ago and movement of petroleum to the East Coast by tank cars can be raised to 800,000 barrels daily under proper conditions, were encouraging facts presented to the National Petroleum Association convention in Cleveland last week.

The increase in high-octane-aviation gasoline has all come from existing facilities, asserted Wright Gary, director of refining for OPC, who stated more plants had come into the picture and were squeezing the last drop of 100-octane from available materials. The total output of this fuel will be pushed far above previous estimates when new plants are completed. Twenty-four major and 36 independent concerns are now participating in the aviation gasoline program.

Hope was expressed by Gary that OPA would shortly approve a price increase for heavy oils to keep refiners' economy in balance. Other points in his talk included:

Inventories of tetraethyl lead have been built back to normal, and the situation is more comfortable. However, no easing of lead restrictions is in sight.

Refiners may have to abandon sweetening processes to conserve chemicals.

Refiners need not be so particular about sulphur specifications now.

The army is considering adoption of an all-purpose, detergent-type lubricant. Car manufacturers may soon recommend use of straight mineral oils, except in differentials.

The possibilities of boosting tank-car shipments to the East Coast to 800,000 barrels daily was foreseen by A. V. Bourque, tank car consultant to Office of Defense Transportation. However, Bourque declared this would require more efficient use and handling, as well as some sort of priorities system as to products hauled. A committee, headed by Bourque, adopted a resolution asking that free time on tank cars be reduced from 48 to 24 hours to speed up turnaround.

Dr. John W. Frey, OPC marketing director, predicted OPA would issue some sort of stop-gap rationing card system on gasoline within the next month in the East and Pacific Northwest areas.

Transportation Big Question Before Texas Commission

Transportation will be the serious problem discussed at the statewide hearing scheduled by the Texas Railroad Commission April 20. If this problem can be solved, Texas oil men will be allowed to produce enough to maintain operations at a reasonable rate.

Last week in Washington, Texas Senator Tom Connally suggested that the government aid financially those operators who might lose their properties because of the 18-day shutdown. This plan was endorsed by Ernest O. Thompson, chairman of the Texas Railroad Commission.

Meanwhile, State Senator George Moffett came to Austin to urge increases in allowables for North Texas. He said that investigations showed 30,000 barrels of pipe-line outlet available to wells in the North Texas District, lines which would carry the oil northward rather than to the coast.

Felix Mendoza Heads Colombian Institute

Colombian Petroleum Institute (Instituto Colombiano De Petroleos) has been organized with headquarters in Bogota, Colombia, and Felix Mendoza, of the Department of Petroleum of the Colombian government, has been chosen as first president. Mendoza is a graduate of the petroleum engineering department of the University of Oklahoma.

The new organization is a professional one and will devote its attention to the technical problems presented by the petroleum business in Colombia. According to a letter to THE OIL WEEKLY from the new president, the Institute will cooperate with the Colombian government in all matters of national interest, especially those pertaining to oil. Membership of the Institute now numbers more than 50 and includes geologists, petroleum engineers, accountants, attorneys, economists, etc.

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OIL IS AMMUNITION ★ KEEP 'EM PRODUCING

Bureau Report Shows Decline in February

Transportation difficulties were reflected back to production in February, it was disclosed April 17 by the Bureau of Mines in a report that daily average output for the month of 4,070,000 barrels represented the first "substantial" decline since 1940.

The daily average was 67,000 barrels under that for January but still remained 470,000 barrels above February, 1941.

There were a number of shifts in the states, the bureau said. California output increased about 20,000 barrels a day, the only substantial gain in any of the major producing states, while all of the major districts in Texas reported lower production, and Oklahoma fell below the 400,000-barrel mark for the first time since April, 1933.

Although daily-average crude runs to stills did not decline quite as much as production, the bureau commented, the balance between supply and demand remained about the same, with about 8,000,000 barrels going into storage in February compared with about 7,000,000 barrels in January.

Daily-average crude runs dropped to 3,778,000 barrels from 3,840,000 barrels in January. There was a decided shift in yields, the gasoline yield dropping 1.8 percent to 42.8 and the distillate yield rising 0.2 percent and the residual yield 1.1 percent, to 14.4 and 25.8 percent, respectively.

"The total demand for motor fuel (domestic origin) in February was about 44,500,000 barrels, or about 3 percent above a year ago," the bureau reported. "In brief, this indicates that rubber conservation, which came faster than anticipated, more than overcame the upward trend in civilian consumption, leaving increases in demand for defense purposes to provide the gain. Inventories of gasoline again increased about 7,000,000 barrels, the total for finished and unfinished on February 28 being 108,297,000 barrels. Although in total this is about 12,500,000 barrels above last year, the most important district, the East Coast, had about a half million barrels less.

"The demand for light fuel oil in February was up roughly 20 percent above last year, whereas the residual demand may have increased 10 percent."

The only statistics on supply and demand now released under military censorship rules showed the month's production of crude to be 113,961,000 barrels; natural gasoline 6,768,000 barrels and benzol, 189,000 barrels, making a total production of 120,918,000 barrels, or 4,319,000 barrels daily. The increase in stocks, all oils, was 2,691,000 barrels.

Stocks at the close of the month were: crude, refinable in the U. S., 260,844,000 barrels; heavy in California, 11,229,000 barrels; natural gasoline, 5,209,000 barrels, and refined products, 278,700,000 barrels, a total of 555,982,000 barrels.

The Bureau of Labor Statistics placed the price index for petroleum and products at 58.9 in February, compared with 59.5 in January and 50 in February, 1941.

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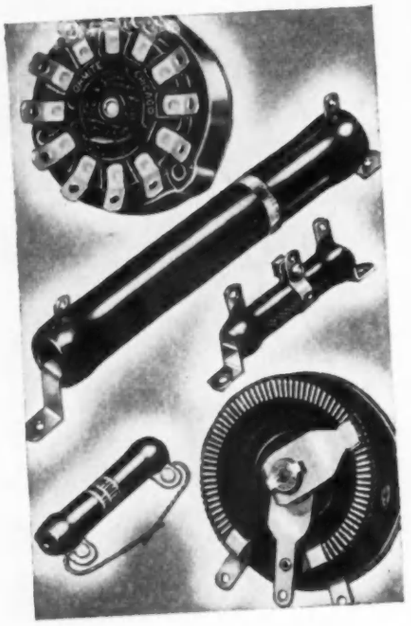

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Washington Roundup

[*Continued from page 14*]

ber board which held a hearing on the petition February 19 and on a statement of views by the War Department. The line, which was estimated to cost $25,000,000, would have had a daily capacity of 70,000 barrels.

Explaining his decision, Eastman said the company had failed to show that the steel requirements of 85,000 net tons, pumps and other materials are available under present conditions.

"On this point," he said, "the corporation takes the position that the first question to determine is whether the line is necessary to the national defense. If such finding is made, then it says, 'whether the steel will be allocated, or substitutes used, or whether new engines or second-hand motive power are to be used,' are matters thereafter to be determined.

"The corporation proposes that the pipe line shall be built with government funds to be supplied by the Defense Plants Corporation."

Eastman pointed out that while representatives of both the Army and Navy attended the hearing, neither offered support of the project and, in fact, the War Department later wrote him, actively opposing the line on the ground that because of its location it would be of relatively little value to the war program.

Extending his cooperation in any move to increase the supply of oil to the East, the ODT head nevertheless insisted that the problem be realistically approached.

"If these were normal times the steel necessary for new pipe lines would be readily available and whatever lines are needed could be built within a relatively short time," he said. "But the imperative steel requirements of the war effort are such that it is necessary to make maximum use of existing facilities before allocation of existing materials can reasonably be asked.

"In the case of pipe lines, this may well mean an extensive relaying of existing pipe in new locations as well as the reversal of some lines in their present positions. Some measures of this character have been taken and others are contemplated. It may well be that in addition to such measures, some new pipe lines are needed for national defense purposes. But such needs must be weighed in the balance with other war needs, for not all can be supplied.

"I shall be glad to join any other governmental agencies in an investigation of the necessity for additional pipe line facilities and have designated R. W. Shields, engineer for pipe lines of the Interstate Commerce Commission, to represent me in any such investigation. It is my opinion that a study of this character must consider the relative merits of all proposed projects, including that of the Trans-American Pipe Line Corporation."

Illinois Representative Wants M-68 Modified

Modification of order M-68 to permit unrestricted operations in small pools in Illinois was demanded in the House April 16 by Representative Lawrence F. Arnold, who pointed out that there are many small pools in his state and land is owned in smaller tracts than in the western producing states, making it difficult to operate under the 40-acre requirement.

Arnold disclosed that the matter had been taken up with OPC, where representations were made that if M-68 is modified it might be possible to reclaim enough pipe from exhausted wells to provide for 6 to 9 months' drilling operations, and that the coordinator's office was studying the situation.

Most of the state's production, he said, is from McClosky lime "and the wells prorate themselves," practically all the oil being recovered and the well closed down within a year or two of production.

"The best evidence of this is in the fact that the present 290,000 barrel daily production is 100,000 barrels per day less than it was 20 weeks ago when order M-68 went into effect," he pointed out.

New Shipping Rates Make Higher Prices Necessary

The War Shipping Administration on April 17 authorized a war surcharge of 60 percent of the basic rate on oil moving from Gulf and Caribbean ports to Brazil and Chile.

At the same time it became known that the East Coast industry had requested an increase in maximum prices for oil products to cover the heavy rise in tanker rates resulting from the surcharge advances made April 2 by WSA on oil from the Gulf and Caribbean to North Atlantic ports of 162 percent on the former and 187 percent on the latter.

The application is said to have been given the approval of Coordinator Ickes and now to be before Price Administrator Leon Henderson. It was figured that the higher surcharges make an increase of 1.54 cents a gallon on gaosline and 1.85 cents a gallon on heavy fuel oil.

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State Authorities Pledge Support

[*Continued from page 15*]

requiring full mobilization of all resources.

"All the states represented here know, however, the extent to which my office has imposed so-called federal control so far. In no instance has any state been told what to do. We have indicated what the national program requires of each state and we have purposely left it to the states to work out their own problems of how best to conform with the national requirements.

"That is the way I prefer to see it handled, but this means that the states must have effective laws properly administered that will permit speedy decisive action if we continue to rely solely upon their voluntary cooperation.

"On previous occasions, I have told the industry's war council that it is the industry's responsibility to solve the problems created by the war with as little assistance from government as may be required. It is the responsibility of the states, jointly and severally, to accept and carry out their important function in this general program."

In executive sessions, the conference heard Deputy Coordinator Robert E. Allen explain the basis for the monthly production recommendations, and entered upon a discussion of the procedure to be followed in a state producing more or less oil than its quota. No conclusions were reached on this point but the matter will be further studied.

The Illinois delegation brought up a discussion of the curbs upon development imposed by the M-68 orders, but officials said there was no issue developed although newspaper stories from Illinois had forecast a fight to have the conservation order relaxed.

The resolution that the states follow the OPC production recommendations was brought in by an allocation committee consisting of Andrew F. Schoeppel, Kansas; Samuel F. Peterson, Illinois; Joseph L. McHugh, Louisiana; Reford Bond, Oklahoma, and Jerry Sadler, Texas.

Other recommendations and resolutions were contained in a report adopted prior to adjournment, which led off with commendation of the coordinator and his entire staff for their "efficient work," and covered the following points:

"In common with all our people, we demand efficiency in government. Such efficiency will save thousands of American lives, will save billions in treasure, and will bulwark our public morale. We demand from our national government speedy, direct and intelligent decisions upon all vital questions concerning the oil industry. On our part, as public officials of our states, we pledge the same policy.

"Aside from the actual fighting, one of our most important, if not the most important, of our problems, is to be sure that we have on hand, and will at all times in the future have on hand, the petroleum supply necessary to win the war, no matter how much may be required. This means we must conserve all the oil we have and we must energetically search for new sources of petroleum supply. To give the necessary stimulus and the necessary capital, the price of crude oil and its products must be permitted to advance reasonably. Another beneficial result will be less gasoline consumed and less rubber used.

"The present depletion allowance of 27½ percent must be retained. This, in reality, creates a defense fund, capital to find new oil to replace the oil being currently consumed. No change should be made in the law allowing the charge for intangible development costs.

Fair Price Necessary

"A fair price for crude is necessary to preserve our wells of settled production, especially the stripper wells.

"All price inequalities must be corrected—not perpetuated. For illustration, some Wyoming heavy oil sells at 40 cents a barrel (much less than actual cost), whereas comparable oils elsewhere sell at twice that price or better.

"Our public lands comprise more than half of the states of California, Wyoming, Montana, Colorado and New Mexico, and more than half this vast area is possible oil territory, to a large extent virgin. Owing to policies that have retarded development, the public lands have not been tested or explored by our latest scientific methods. We urge that the Honorable Secretary of the Interior promote and encourage exploratory operations on these lands, and to that end adopt in substance the 88 lease form customary in the industry, and reduce the royalty on all future wells to the almost universal one eighth. A little extra royalty money should not impede our supreme war effort. At the same time, he should rescind his recent regulation, denying to a government lessee the right to assign his property, without the consent of the secretary, and imposing burdens on the statutory right of renewal of leases.

"We must not repeat the mistake of rubber. Is it not better to be alert, to plan ahead, to realize that we may have unforeseen events and disasters before final victory? Therefore, among other things, we should begin to get ready to make available for petroleum needs our proven deposits of coal and oil shale, which have all the oil we can possibly need during this war and for a thousand years in the future. We should not wait until the necessity is upon us, until it is too late. We should at least be in the blueprint stage. The Secretary of the Interior should be given the money to enable his scientific men to perfect the necessary processes, already fairly well worked out, and to build test plants.

"All restrictions on exploratory drilling must be well considered and intelligent, so that they may accomplish the purpose intended, and do the minimum of harm. We stand ready to confer and advise with responsible federal officials as to all matters where we have a practical experience in the public interest.

"We request a press release by the Petroleum Coordinator to encourage regulatory bodies to cooperate with operators in filing pool applications for exceptions to M-68 by having hearings and transmitting transcripts of those hearings to the Office of Petroleum Coordinator in Washington.

"The Interstate Oil Compact Commission has tendered the coordinator its loyal support. We do likewise. We serve the public interest, not the industry. There is much that we can do to help. It is fitting that the federal government and the states should cooperate heartily and effectively during this, our great struggle for national survival."

The resolutions were drafted by a committee consisting of Warwick Downing, Colorado; Ausin B. Middleton, Montana; Reed Bush, California; Parker L. Melvin, Pennsylvania, and N. W. Shiarella, Kentucky.

Details of permanent organization and the date for the next meeting of the conference are to be worked out by an organization committee consisting of John M. Kelly, New Mexico; Parker L. Melvin, Pennsylvania, and P. J. Hoffmaster, Michigan.

It is proposed that the group will hold regular meetings every three months.

Rubber

[*Continued from page 16*]

Butyl rubber requires a lower investment in equipment than does Buna. W. S. Farish, president of Standard Oil Company of New Jersey, has declared that Butyl can be made at an investment of about $700 per ton per year as compared with $1000 for Buna. The relative cheapness of Butyl is at least partly due to the fact that olefin gases, which comprise the major portion of this rubber, are already being produced in fairly large quantities from refinery cracking operations. Almost any refinery with ample cracking facilities probably could materially expand its output of Butyl-making gases. On the other hand, the main raw material for Buna, butadiene, has to be made in specially designed equipment. This means, of course, that manufacture of Butyl raw materials would require the use of less steel. Butyl tires probably would retail at about half the price of Buna tires.

Butyl is a relatively new rubber and might not have the wearing qualities of Buna, but Farish has said "the rubber companies know how to make Butyl rubber tires which will last as long as 10,000 miles when used on passenger cars which are operated at less than 35 miles per hour."

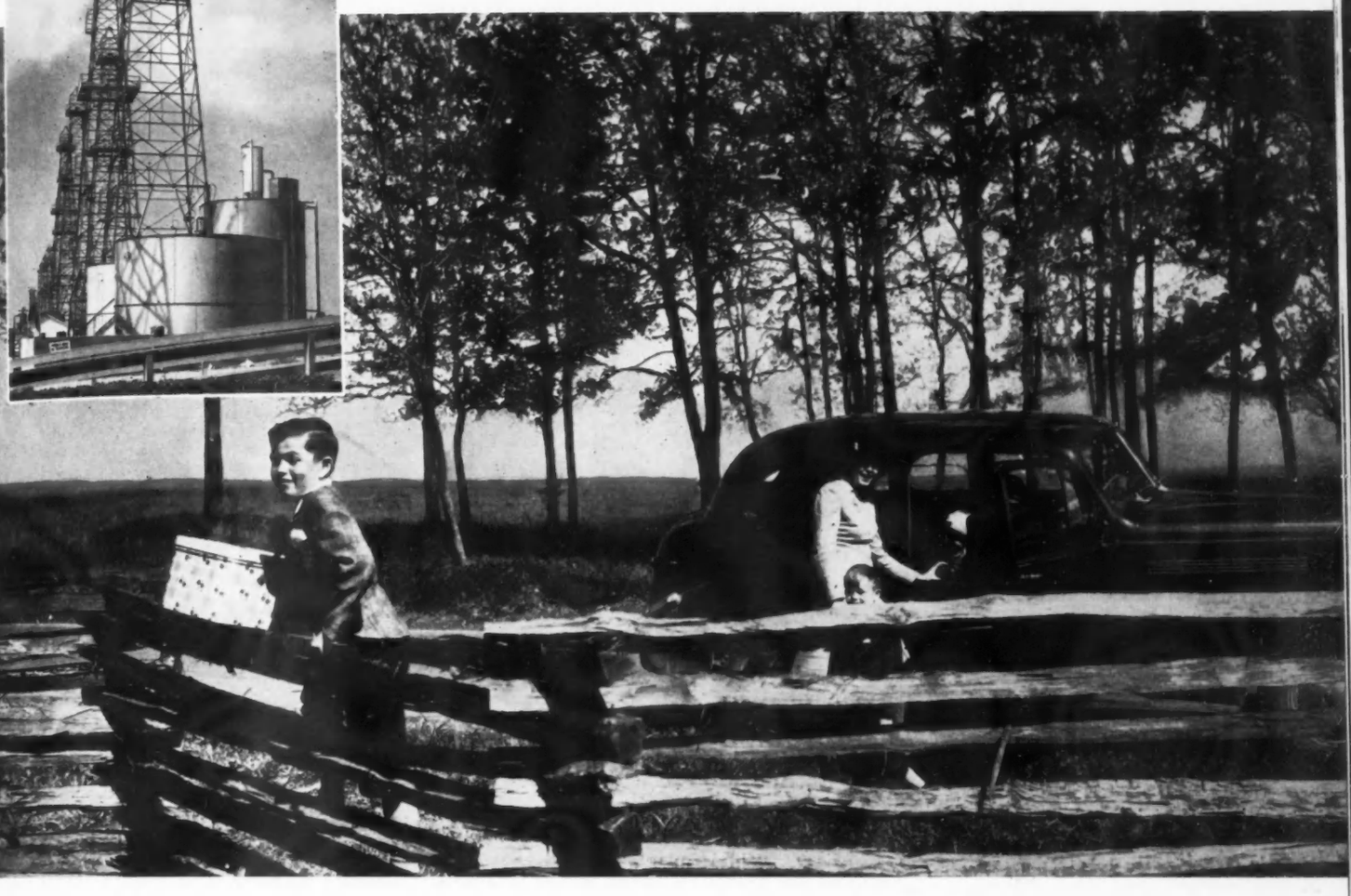
Natural Gasoline Output Ahead of Last Year

Production of natural gasoline and allied products in February averaged 10,152,000 gallons per day compared with 10,145,000 gallons in January, it was announced by the Bureau of Mines April 16.

Total output for the month, however, was but 284,256,000 gallons compared with 314,496,000 gallons in January, but the total of 598,752,000 gallons for the first two months of the year was more than 200,000,000 gallons more than the 396,858,000 gallons reported for the corresponding period in 1941.

Stocks at refineries declined during the month from 105,420,000 to 104,496,000 gallons but those at plants and terminals increased from 96,264,000 to 114,282,000 gallons, the bureau stated.

THESE WELLS WERE DRILLED . . . SO THEY COULD GO RIDING!



Behind the comforts we have learned to know and enjoy as the American Way of Life, lies oil . . . oil in its thousand and one forms that raised our daily routine, and in turn made ours the most envied, the most fabulously endowed country in the world.

However, oil wasn't discovered here. Oil was being produced long before there was a United States. But the initiative, farsightedness and resourcefulness of the oil men of America developed our oil to the extent that our standard of life finally depended on it. Our country became mechanized . . . our transportation, communications, our whole life leaned on oil for its support. The American Automotive industry sprang up; 'ole Jim Jones bought a car; others followed. And always there were new oil fields, better oil, better ways of producing and refining oil.

Then oil men began to plan for the future. Better motors would need better gasoline. Better motors were produced and the fuel was waiting for them. Airplanes needed gasoline that would not freeze in the substratosphere. And long before the planes to climb that high were manufactured, there, again, the fuel was waiting.

When war came, the oil industry was one of the few that could say, "O.K. America. We're ready. Here's the oil!" And the oil was ready in such quantities that most of the steel normally used for equipment to produce more oil was almost immediately ready for diversion to the manufacture of vital armament.

So, because of your good work and planning, our industry today is capable of doing its part to produce war machines.

But, when the war is over, we'll still be in the business of supplying you with the best equipment possible to continue the plans you have for the future . . . so you can freely drill again that America might freely ride again.

THE PARKERSBURG RIG & REEL COMPANY

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PARKERSBURG

Improvement in Heavy Fuel Stock Situation; Gasoline Stronger

The industry's operations were stabilized during the week ended April 11 around the levels of the preceding week, and stocks showed more normal reactions. Noteworthy was arresting of withdrawals of heavy-fuel oil from storage, as refinery yields of that product apparently were further stepped up; and for the second consecutive week, there was some build-up of heavy-fuel inventories on the East Coast, in the face of a still further curtailment of Eastern refinery runs and withdrawals of gasoline and light fuel oil from storage in that district.

The Eastern plants charged to stills only 403,000 barrels daily, having used merely 56.4 percent of their combined daily capacity of 714,000 barrels. Those runs were 26,000 barrels under daily throughput of crude the previous week. Gasoline output consequently declined, and 40,000 barrels a day came out of storage, while drafts on light fuel oil stocks averaged 106,000 barrels a day. However, stocks of residual fuel oil were increased on the average 26,000 barrels a day, 180,000 barrels having been added during the week. The recently instituted more drastic curtailment of gasoline deliveries to dealers probably had not yet manifested itself in the statistics.

For the country as a whole, refinery runs averaged 3,518,000 barrels daily, practically the same as the week before. That rate represented use of 75 percent of plant capacity. It was 4 percent less than the runs of 3,664,000 barrels daily a year previously. For the week, there were no large changes in operating rates as compared with the preceding week, some districts having registered small increases and others small decreases.

Despite unchanged refinery runs of crude, however, there was a sharp reduction in gasoline production, which averaged 64,000 barrels a day less than in the previous week, with all but a few districts showing smaller output.

In the face of that general cutting down of gasoline production, however, there was only a normal seasonal withdrawal from gasoline stocks; and if production had not been reduced, stocks would have failed to show any material decrease, although withdrawals are normal at this time of year.

Inventory of gasoline came down 569,000 barrels in the week of April 11, to 104,580,000 barrels. The latter figure exceeded by 6½ million barrels (6½ percent) the 98,110,000 barrels on hand a year previously. Most significant among the changes by districts was the previously mentioned 284,000 - barrel withdrawal on the East Coast.

Stocks of residual fuel oil were increased 71,000 barrels in the week ended April 11, although the East Coast and Gulf Coast largely accounted for the gain, while small decreases occurred in most other districts. Latest total of 82,526,000 barrels was 11 million barrels, or 12 percent, under that reported a year before.

The week's statistics attested need for the recent order curtailing deliveries of heating oil to East Coast consumers, as 744,000 barrels came from storage in the region. For the rest of the country there was practically no change in stocks. The present inventory of 30,602,000 barrels is 1¼ million barrels (4 percent) above that held a year ago.

Gasoline Prices Improve

The past week brought some improvement in the gasoline market, following the earlier sagging of prices in most districts outside the East Coast, when storage tanks generally were full or nearly full in the climb of stocks to the all-time peak of 107,229,000 barrels at the middle of March. In the Middle West and in the upper Mid-Continent, most grades of gasoline early last week advanced ⅛ cent a gallon on the lows of price ranges. The improvement in demand reflected orders from the East and also consumption for agricultural purposes. It was indicated, too, that demand in general was holding up better than expected.

In the East Coast district, markets for all petroleum products naturally continued tight, with supplies low even in relation to the demand under curtailed deliveries of gasoline and heating oil. Kerosine supplies were practically exhausted in the New York area, according to some suppliers.

As heretofore, markets in the Gulf Coast area are quiet, and with refinery throughput being maintained, there is continued backing up of gasoline, light fuel oil, and heavy fuel oil in storage, despite comparatively large shipments out of the district by rail, in partial compensation for the loss of tanker tonnage. Consequently, more refiners will be forced to reduce runs or in some instances to shut down plants. The only products moving out freely are aviation gasoline and other materials directly needed in the war.

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels)

STATE OR DISTRICT	[1]OPC Allocation in April	PRODUCTION IN WEEK ENDED April 11	April 18
Arkansas	74,000	75,600	73,600
California	659,800	622,300	640,100
Long Beach		37,500	38,200
Midway-Sunset		61,400	59,500
Kettleman Hills		23,600	26,100
Wilmington		91,900	94,300
Rest of State		407,900	422,000
Colorado	6,900	5,150	4,900
Illinois	354,400	298,900	395,850
Salem		47,200	47,400
Louden		51,600	49,000
Other New Pools		188,150	287,350
Old Pools		11,950	12,100
Indiana	18,200	18,250	18,400
Kansas	253,400	236,100	253,100
Kentucky	12,800	12,400	12,300
Louisiana	313,000	336,350	330,200
North		80,650	81,700
South		255,700	248,500
Michigan	60,200	51,300	56,750
Mississippi	49,800	98,350	97,150
Missouri		130	130
Montana	23,700	21,600	21,600
Nebraska	5,000	4,150	4,200
New Mexico	86,000	80,000	80,000
New York	14,600	13,850	12,650
Ohio	10,100	9,750	9,650
Oklahoma	436,900	393,400	396,650
Oklahoma City		72,350	75,000
Seminole Area		104,200	105,850
Rest of State		216,850	215,800
Pennsylvania	49,900	56,300	57,250
Tennessee		30	30
Texas	[2]1,134,000	1,089,300	1,087,700
Upper Gulf Coast		234,800	230,200
East Texas Field		226,200	226,300
Rest of Eastern Texas		78,900	80,100
Lower Gulf Coast		79,400	85,500
Southwest Texas		46,800	52,300
South Central Texas		18,700	19,400
West Texas		186,700	190,500
North Texas		115,500	115,800
Panhandle		102,300	87,600
Utah		15	15
West Virginia	15,200	9,900	9,900
Wyoming	88,900	88,710	89,910
Total United States	3,666,800	3,521,835	3,652,035

[1] Production rates recommended for states by Office of Petroleum Coordinator, on basis of Bureau of Mines forecast of the nation's daily average requirement for domestic crude during month. State conservation authorities have prescribed allowables calculated to hold actual production within OPC allocations. (Details on state allowables published March 30, 1942, page 47.)

[2] Most Texas fields were ordered shutdown 18 days: April 3, 4, 5, 6, 10, 11, 12, 13, 17, 18, 19, 20, 24, 25, 26, 27, 29, and 30.

Illinois Boosts Crude Output for Week

United States crude oil production averaged 3,652,035 barrels daily in the week ended April 18. The output was 130,200 barrels a day greater than in the previous week but was 14,765 barrels under the daily average recommended for April by the petroleum coordinator.

The increase reflected particularly a sharp increase in Illinois, while California, Kansas, and Michigan also were up substantially and Oklahoma a little. Small decreases occurred in Arkansas, Louisiana, Mississippi, and Texas, while New Mexico was unchanged.

Illinois averaged 395,850 barrels daily, compared with 298,900 the previous week, and for the two weeks closely conformed with the coordinator's recommendation that the state produce 354,400 barrels daily during the month. California rose to 640,100 barrels daily from 622,300 the week before; Kansas to 253,100 from 236,100; Michigan to 56,750 from 51,300, in accordance with the government's wishes for larger output in the latter state, and Oklahoma to 396,650 from 393,400.

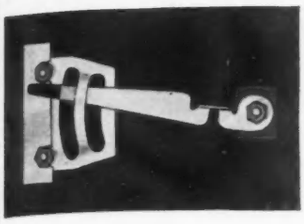
Arkansas declined to 73,600 barrels daily from 75,600, Louisiana to 330,200 from 336,350, Mississippi to 97,150 from 98,350, and Texas to 1,087,700 from 1,089,300. New Mexico again averaged 80,000 daily.

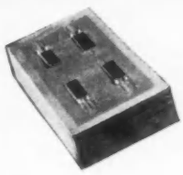
Bureau of Mines Opens Pennsylvania Field Office

Establishment at Franklin, Pa., of a field office of the petroleum and natural gas division of the Bureau of Mines, "to stimulate crude oil production in Appalachian oil fields for the war program and to promote conservation of petroleum," has been announced by the Interior Department.

C. J. Wilhelm, petroleum engineer

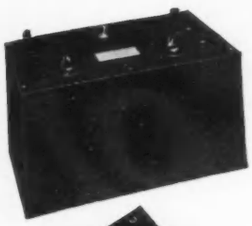
The object of most physical tests made on materials, equipment, and structures is to determine the magnitude, kind, and number of stresses—the amount of resistance a member or structure offers to loading, twisting, vibration, or distortion under specific conditions. Some of the many types of strain gages and auxiliary equipment needed in stress determination are the following:

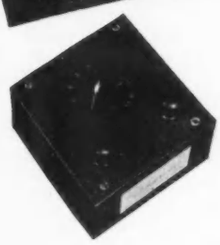




RECORDING SCRATCH AND METALECTRIC STRAIN GAGES

are representative of the mechanical and electrical types of gages. Both gages are light-weight, simple, inexpensive, and reliable. The field of usefulness of these gages is almost unlimited. *Auxiliaries:* scratch gages, microscope for reading records, control box for static loads, amplifiers and recorders for dynamic loads.





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Designed for use with electric and magnetic strain gages, static and slowly applied loads. Calibrator for instantaneous checking during dynamic testing of resistance type strain gages.

* * *

Other auxiliary testing equipment in this group: Spring and motor driven scratch gages; inductor telemeter; Stresscoat, a brittle lacquer for aid in stress analysis; microscope and viewing equipment.

He measures stresses through a seeing hand

In the oil industry, as in every commercial field today, avoidable breakdowns can no longer be tolerated. Overnight, expert *pre-testing* of equipment has become a national "must".

It was for this precise purpose that WAUGH LABORATORIES was formed . . . to make available a complete line of dependable test instruments and machines, together with an experienced engineering field staff and laboratory facilities, for the determination and analysis of strains, forces, and vibrations in and on structures of all kinds.

For information regarding its services as applied to individual industries, write to Nereus H. Roy, *Director,* at the address below.

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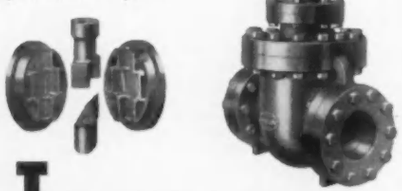
Construction Features: **Self-releasing 30° angle wedges and free-floating gates, self-adjusting to seats, afford smooth, trouble-free performance, long service. Rings are cleaned throughout stroke action. Gates are wedge-locked directly opposite ports and completely unwedged before raising. Ample tolerances provide easy action. Simple construction permits easy replacement of parts.**



LUDLOW VALVES

SINCE 1866

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

ITEM	Crude Oil Prod. Bbls. Day (Add 000)	Crude Oil Prod. Week Ended	Runs to Stills Bbls. Day (Add 000)	Runs to Stills Week Ended	Crude Stocks Bbls. (Add 000)	Crude Stocks Week Ended	Gasoline Stocks Bbls. (Add 000)	Gasoline Stocks Week Ended	Gas Oil & Distillate Stocks Bbls. (Add 000)	Gas Oil & Distillate Stocks Week Ended	Residual Fuel Oil Stocks Bbls. (Add 000)	Residual Fuel Oil Stocks Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]107,229	3-14	49,357	1- 3	95,857	1- 3
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-21	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	80,870	10- 4	28,381	4-12	92,635	7- 5
1942	3,418	4- 4	3,515	4- 4	244,364	1-10	92,987	1- 3	30,602	4- 4	82,455	4- 4
Trends in 1942 (Week Ended):												
Jan. 3	4,038	.....	3,961	.....	244,440	.....	92,987	.....	49,357	.....	95,857	.....
Jan. 31	3,871	.....	3,848	.....	250,740	.....	97,810	.....	40,674	.....	91,189	.....
Feb. 28	4,016	.....	3,675	.....	259,373	.....	105,635	.....	34,547	.....	88,285	.....
Mar. 28	3,820	.....	3,667	.....	263,208	.....	105,624	.....	31,756	.....	83,045	.....
April 4	3,418	.....	3,515	.....	261,768	.....	105,149	.....	31,231	.....	82,455	.....
April 11, 1942	**3,543**	.....	**3,518**	.....	.....	.....	**104,580**	.....	**30,602**	.....	**82,526**	.....
April 11, 1941	3,603	.....	3,664	.....	[4]265,540	.....	98,110	.....	29,378	.....	93,616	.....
Change:												
In week	+125	.....	+3	.....	—1,440	.....	—569	.....	—629	.....	+71	.....
In year	—60	.....	—146	.....	—3,772	.....	+6,470	.....	+1,224	.....	—11,090	.....
In year	—1.6%	.....	—3.9%	.....	—1.4%	.....	+6.5%	.....	+4.1%	.....	—11.9%	.....

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Stocks, April 5, 1941.

formerly assigned to the Bartlesville experiment station, will head the new office, and among the half-dozen assistants he will have will be S. S. Taylor and E. M. Tignor, petroleum engineers formerly at Bartlesville and Laramie, respectively.

The office is being established at the request of operators and others connected with development in the region, it was explained, and as their first activity, engineers at Franklin will consult with operators and point out engineering precepts applicable to existing conditions in secondary recovery projects.

A substantial increase in production in the Appalachian area is planned by the operators with the encouragement and cooperation of OPC.

Tropical Gets Radio Renewal in Colombia

An indication of considerable exploratory activity this year by Tropical Oil Company is seen in the Colombian government's renewal of the company's licenses to operate radio stations in exploratory work in the departments of Antioquia, Boyaca, Caldas, Cundinamarca, Bolivar, Magdalena, Santander and Tolima. These departments embrace the central portion of the country.

Refinery Runs Drop During February

Daily average crude runs to stills dropped 63,000 barrels in February, although they remained 190,000 barrels higher than in the corresponding months last year, it was reported April 15 by the Bureau of Mines.

Daily average runs for the month were 3,777,000 barrels, which exceeded receipts of domestic crude by 153,000 barrels, the bureau said.

Total runs for the month were 105,776,000 barrels and fuel and losses were 151,000 barrels, while receipts of domestic oil were but 101,472,000 barrels, resulting in a decline in stocks from 51,100,000 to 50,262,000 barrels.

International Acquires 3 Concessions in Ecuador

Acquisition of three concessions totaling 500,000 acres in Ecuador by International Petroleum Company, was confirmed last week in New York. The properties were obtained by governmental transfer from former concessionaires.

One block of 95,000 acres is a concession contract formerly held by Robert L. Morris of New Orleans, and H. K. V. Tompkins of Houston. A structure has been outlined on the concession. Adjoining this block on the east is the second tract, a 123,000-acre study concession, also formerly held by Morris and Tompkins, which includes the town of Esmeraldas. Geological work has been done on it. The third tract, comprising 247,000 acres, was known as the Ayora concession following its relinquishment last year by Segundo A. Calisto.

U. S. Field Operations

Illinois

Jefferson County Discovery Completed

Deaton-Bears' Howard 1, NE NE NW 5-1s-2e, four miles east of Dix field, Jefferson county, swabbed 312 bbls a day following two acid treatments totaling 3500 gallons at 2621-26 ft.

Marion County—Louis Lilly's Leonard 1, NE SE NE 17-1n-1e, one mile east of Centralia, pumped 80 bbls oil in 24 hours, 15-quart shot in Cypress 1667-72 ft. Lilly's Bell 1, NE NE SE 17-1n-1e, first offset, abandoned 1825 ft.

Hamilton County—H. Evans Lockwood 1, SE NE NW 24-6s-5e, Rural Hill field, Illinois' first well on a one-acre tract since M-68, pumped 48 bbls in 24 hours from Aux Vases 3121-29. Evans obtained permit from OPC in Washington.

COMPLETIONS

Crawford County—Lain O&G's Ferrebee 1, c n½ nw sw 20-8n-13w, abnd 1259 ft.

Crawford County: Wildcat—Kemp & Dailey's Lewis et al 1, c e½ nw nw 9-6n-13w, abnd 1685 ft.

Edwards County: Wildcats—Taylor Drlg. Co.'s Odle 1, c s½ se sw 30-1s-11e, Aux V 3059-71 ft, td 3261 ft, 19 bbls.

Superior's Huber 1, c e½ sw se 7-2s-14w, abnd 3177 ft.

Hamilton County—Shell's Ritcheson 5, se sw ne 7-6s-7e, Bethel 2881-88 ft, pb 2890 ft, td 3006 ft, 3 bbls.

Cameron Bros.' Johnson 2, sw ne ne 6-6s-7e, Aux V sd 3037-3060 ft, and 3063-70 ft, Cypress 2724-44 ft, td 3073 ft, 209 bbls.

Cameron Bros.' Lockwood B-2, sw sw nw 24-6s-5e, Aux V sd 3083-96 ft, 3096-3113 ft, td 3113 ft, 358 bbls.

Hamilton County: Wildcat—D. S. Ring's Johnson 1, c nw se 21-6s-5e, Aux V 3180-98 ft, pb 3257 ft, td 3414 ft, 12 bbls.

Richland County—Central Pipe Line et al's Walters-Yonaka 1, sw se 21-2n-14w, abnd 3164 ft.

Ohio's Koertge-Clodfelter Comm. 1, sw ne ne nw 29-2n-14w, abnd 3148 ft.

Gulf's Eberhardt 2, sw c ne ne 5-3n-9e, td 2380 ft, salt water disposal.

Wabash County—Trans-Tex's Mussett 1-B, sw se ne 30-2s-13w, Cyp 2459-65 ft, td 2475 ft, 80 bbls.

Washington County: Wildcat—Magnolia's Piglowski 1, se nw 13-3s-3w, abnd 1501 ft.

Wayne County—Illinois Mid-Continent Oil Co.'s Harris 2, sw ne 3-3s-8e, abnd 3519 ft.

Wayne County: Wildcat—Yingling et al's Ellis 1, c w½ sw ne 18-1s-5e, Aux V 2918-36 ft, pb 2940 ft, td 3180 ft, 450 bbls.

White County—Continental's McQueen 1, ne sw sw 32-5s-10e, Clore 2075-90 ft, td 2092 ft, 179 bbls.

Williamson County: Wildcat—Madison Coal Corp.'s Fee 25, ne ne nw 12-8s-3e, abnd 2136 ft.

OLD WELL DEEPENED

White County—Tide Water's Evans 1, sw nw nw 4-4s-14w, McClosky 2897-2909 ft, otd 2869 ft, td 2910 ft, 75 bbls.

WILDCAT STARTS

Clark County—D. E. L. Byers' Kannmosher 1, se se 23-10n-13w, lcn.

A. M. Myers' Fudge 1, c e½ ne ne 20-12n-14w, dr.

Clay County—John Sanders et al's Bissey 1, c s½ ne nw 2-2n-7e, lcn.

Clinton County—E. Frank Jones' Harrison 1, ne se nw 2-2n-2w, lcn.

Effingham County—Ray Powers et al's Lohman 1, c e½ se sw 28-9n-6e, lcn. F. Jablonski et al's Barnick 1, ne nw 36-6n-6e, lcn.

Franklin County—Grady & Daniels' Benton 1, ne sw 30-5s-3e, lcn.

W. F. Catlett's Franklin Co. 1, c n½ nw se 1-7s-4e, lcn.

Montgomery County—Papoose Oil Co.'s Whitten 1, nw nw nw 10-7n-2w, lcn.

White County—A. B. Speek's Higginson 1, se se se 15-4s-10e, lcn.

Williamson County—Madison Coal Corp.'s Williamson 25, ne ne nw 12-8s-3e, com.

Results on Industry's Prospecting Fronts

Wildcat completions reported during week total 53 of which 10 produced oil, 1 gas and 4 distillate. Total for year 815, including 102 oil wells (see table below).

Arkansas: Midway's chances look better with tests running high.

North Louisiana: LaSalle Parish wildcat pumping oil.

South Louisiana: New sand on Leeville flank.

Michigan: Reed City extended mile south.

North Texas: Shallow Strike in Archer.

Oklahoma: Garvin test indicates pool.

Kentucky

Henderson County Wildcat Testing McClosky Showing

Chenault & Farmer's Glenmore 1, SW NE SW 19-Q-26, Henderson County will test 8-ft McClosky saturation bottomed 2019 ft in hole to 2030 ft. Operators have small discovery in same formation less than mile north.

Webster County: Sun's Gibson 1, NW NE NW 19-M-22, had Ste. Genevieve 2610 ft, abandoned 2790 ft.

COMPLETIONS

Daviess County—D. G. Bolling's Murphy 2, 13-N-29, Barlow Ss 1373-90½ ft, td 1390½ ft, 10 bbls.

W. Sargent et al's Wiles 1 (2), Palestine 1027-46 ft, pb 1067 ft, td 1300 ft, 18 bbls.

WILDCAT START

Daviess County—Pacific Oil Co.'s Wilson 1, 3-O-28, lcn.

Indiana

Posey County Wildcat Has Promising Aux Vases Sand

Sun's Byrd 1, NE SE 4-8s-14w, half-mile north production in southern Posey County, testing promising Aux Vases saturation in 2621-ft hole.

Second Mansfield producer at Mt. Vernon, Carter's Erwin 4, NE NE NE 1-7s-14w, indicated 200-bbl flow after 60-qt shot at 1273-1309 ft.

Carter drilled through dry McClosky, plugged back to Tar Springs at 2137-45 ft, where test after 40-quart shot showed 1 bbl hour, at Allyn 1, C NW NE 28-6s-14w.

Paul Rossi's Mauzy 1, NE NW NW 8-7s-12w, 2 mi production, swabbed 220 bbls in 14 hrs to open pool in Aux Vases, 2609-17 ft.

COMPLETIONS

Pike County—Joe Dawson & Paul Steed's Patberg 2, sw ne se 16-3s-7w, Cyp 1146-55 ft, td 1162 ft, 25 bbls.

Posey County—Roy Pledger's Utley 1(2), se nw sw ne 26-6s-13w, abnd 2501 ft.

Spencer County—Jesse Wilson's Miller 1, 150 ft s of sw nw ne 5-7s-7w, abnd 535 ft.

Sullivan County: Wildcat—Sun's Knotts & Pifer 1, survey 19-6n-9w, abnd 1398 ft.

Kansas

New Lansing Lime Pool In Cowley County

Cowley County adds a new Lansing lime pool; extension is anticipated north of Hilger pool.

Barber County: An abandoned gas well, Great Lakes Carbon Co.'s Swartz 1, C NW SE 31-31-11w, in the Whelan area, has been found to be producing gas into near-surface strata from a stray sand between the Topeka and Lansing-Kansas City limes. Gas seeps developed

U. S. Drilling Operations in Week Ended April 18, 1942

STATE	ALL WELLS COMPLETED THIS WEEK Total	Oil	Gas	Dry	†Miscel.	Total 1942	Total this Date 1941	WILDCATS COMPLETED‡ THIS WEEK Total	Oil	Gas	Dry	Distillate	Total 1942
Alabama						3							3
Arkansas	2			2		40	50						4
California	14	7		6	1	259	324						6
Colorado						4	5						
Georgia						1							1
Illinois	18	9		8	1	577	934	7	3		4		128
Indiana	4	1		3		115	136	1			1		8
Kansas	36	16	1	19		496	581	8	1		7		112
Kentucky	2	2				48	75						3
Louisiana	10	6		4		327	402	3	1		2		53
Michigan	8	5		3		204	238	1			1		47
Mississippi	3	1		2		51	45	2			2		13
Missouri						9	18						
Montana	3	3				46	61						
Nebraska	1			1		16	24	1			1		6
New Mexico	4	4				125	109	1	1				9
New York	22	12			10	368	197						
Ohio	12		5	7		366	462						
Oklahoma	39	14	3	16	6	528	571	10	2	1	7		87
Pennsylvania	48	45	3			1,036	1,052						
Tennessee						2	7						
Texas	109	69	2	25	13	2,231	2,725	19	2		13	4	334
West Virginia	8		7	1		219	206						
Wyoming						29	31						1
Total this week	343	194	21	97	31	7,100	8,253	53	10	1	38	4	815
Total last week	287	166	17	89	15	6,757	7,638	37	7		30		762
Total this year	7,100	4,119	563	1,714	704			815	102	10	697	6	

† Miscellaneous completions: Includes old wells deepened, water intake, gas input, salt water disposal, and distillate wells.
‡ OPC program calls for 4,000 wildcats in 1942, of which 624 should produce oil and 116 gas, leaving 3,260 dry.

in dangerous areas and the well is being killed for a cement job.

Cowley County: Earl Wakefield et al's Henderson 1, C NW NW 26-32-3e, southeast of Carson field and west of Winfield, is a pool opener from Kansas City-Lansing lime at 2704 ft. On completion test the well made 409 bbls daily.

COMPLETIONS

Barber County: Whelan—Great Lakes Carbon Co.'s Swartz 1, c nw ne 31-31s-11w, Viola 4521 ft, abnd 4619 ft.

Barton County: Beaver—Vickers' Morgan 2, c s½ sw ne 22-16s-12w, Basal sand 3373 ft, td 3377 ft, shot 12 qts, 3365-77 ft, pump 476 bbls.

Barton County: Trapp—Shell's Batt B 5, se nw se 2-16s-14w, Basal sand 3376 ft, abnd 3380 ft.

Barton County: Kraft—Gulf's Soeken 1, ne se ne 21-17s-11w, Arb 3277-80 ft, td 3286 ft, 3000 bbls.

Barton County: Unnamed—Transwestern's Deckert 1, c e½ se ne 18-20s-15w, Arb 3790 ft, td 3864 ft, 3,952,000 gas, rock pressure 1032 lbs.

Butler County: Wildcat—Adair & Morton's Jones 1-A, sw sw ne 30-28s-7e, K. C. 2115 ft Miss 2804 ft, abnd 2840 ft.

Cowley County: Wildcat—Texas Co.'s Ford 1, ne ne sw 30-33s-6e, Lansing 1780 ft, Stalnaker 1805 ft, Bartles 2962 ft, Miss 3035 ft, Arb 3403-3473 ft, abnd 3520 ft.

Cowley County: Semi-Wildcat—Rocket Drlg. et al's Hoffman 1, nw nw se 13-34s-5e, Miss 2990 ft, abnd 2998 ft.

Texas Co.'s Lorton 1, ne ne sw 30-33s-6e, Arb. 3503 ft, abnd 3520 ft.

Ellis County: Bemis—Cities Service's Collaham B 12, c e½ ne ne 25-11s-17w, Arb 3338 ft, td 3412 ft, 1000 gals acid, pump 506 bbls.

Ellsworth County: Wildcat—N. Appleman et al's McManes 1, se se nw 29-15s-6w, Anhy 262 ft, Ft. Riley 1075 ft, Florence 1175 ft, Neva 1275 ft, Lansing 2635 ft, Weathered Miss 3127 ft, Miss 3148 ft, Kinderhook 3193 ft, Viola 3465 ft, Simpson 3555 ft, Arbuckle 3598 ft, abnd 3630 ft.

Ellsworth County: Wilkens—Gulf's Mehl 5, c n½ sw nw 18-17s-9w, Arb 3254-56 ft, td 3269 ft, pump 210 bbls oil, 12 bbls water.

Jefferson County: Forest City—Ira Keith's Smith 1, c ne ne 3-11s-18e, Miss 1634 ft, abnd 1777 ft.

Johnson County: Wildcat—W. D. Dunn's Morgan 1, c w½ sw nw 6-13s-22e, Base Hertha 358 ft, Miss 1115 ft, Chatta 1400 ft, Hunton 1448 ft, Viola 1472 ft, Wx 1587 ft, Arb 1680 ft, abnd 1734 ft.

Kingman County: Cunningham — Skelly's Michener 1, c sw sw 31-27s-10w, Viola 4245 ft, abnd 4260 ft.

Leavenworth County: McLouth—McLaughlin et al's Bankers Life 1, c n½ sw sw 3-10s-20e, McLouth 1455 ft, pay 1455-85 ft, td 1491 ft, shot 150 qts, 2000 gals acid, pump 60 bbls.

Marion County: Lost Springs—Ring-Mac's Hajek 4, c w½ sw sw 33-17s-4e, chat 2402 ft, td 2429 ft, pump 157 bbls.

McPherson County—Texas Co.'s Tolle 2, c s½ se se 16-17s-1w, Dolomite 2671½ ft, abnd 2702 ft.

Norton County: Wildcat — Cities Service's Mizell 1, ne ne se 15-3s-25w, Base Ft. Hays 530 ft, Dakota 940 ft, Morrison 1400 ft, Permian 1570 ft, Anhy 1960 ft, Topeka 3285 ft, Lansing 3440 ft, Base K. C. 3622 ft, LaMotte 3785 ft, Granite wash 3801 ft, Sdy granite wash 3801 ft, weathered Granite 3840 ft, abnd 3897 ft.

Reno County: Hendrickson—Lion's Phillips 1, se sw ne 2-23s-14w, Viola Dolomite 3721 ft, td 3729½ ft, swab and flow 15 bbls oil 1 hr, 2500 gals acid, pump 1487 bbls.

Rice County: Raymond—Branine & Hall's Masorman 1, c n½ nw nw 17-20s-10w, Lansing 3075 ft, td 3381 ft, pb 3300 ft, abnd.

Hyde & Stormfeldt's Rick 2, c se se 17-20s-10w, White Lansing 3063-93 ft, td 3126 ft, 5000 gals acid, flow 52½ bbls oil 4 hrs.

Anderson & Prichard's Yeo A-1, c n½ ne ne 30-20s-10w, Arb 3291 ft, td 3294 ft, swab 70 bbls oil before acid, 1500 gals acid, 1080 bbls oil.

Rooks County: Wildcat—Palmer's Baum 1, c s½ nw ne 10-10s-16w, Anhy 1110 ft, Ft. Riley 1890 ft, Florence 1990 ft, Wreford 2070 ft, Topeka 2784 ft, Lansing 3040 ft, Sandy congl 3390 ft, Rew Arb 3444 ft, Arb 3488 ft, td 3540 ft, 1000 gals acid, est 25 bbls oil, 48 holes 3105-27 ft, 2000 gals acid, 5000 gals acid, 210 bbls, gravity 38.

Rush County: Otis-Albert—Schermerhorn's Hergert 1, c se sw 25-18s-16w, White Sand 3592-97 ft, td 3597 ft, pb abnd 3590 ft.

Russell County: North Fairport — H. L. Stuart et al's Spicer 1, nw nw sw 21-11s-15w, Arb 3372 ft, abnd 3373 ft.

Russell County: Hall-Gurney—Braden & McClure's Opdycke 2, c s½ nw nw 29-14s-13w, td 3151 ft, pump 283 bbls.

Russell County: Greenvale — Eldorado's Kuhnle 2, c s½ nw nw 4-15s-12w, Gorham 3203 ft, td 3228 ft, pump 206 bbls.

Russell County: Dubuque—I. W. Murfin's Janne 3, sw nw se 27-15s-12w, Lansing 3025 ft, pay 3170-73 ft, pay 3181-89 ft, td 3375 ft, pb 3190 ft, fill 300 ft oil & 100 ft water, 1000 gals acid, pump 60 bbls oil, 60 bbls water.

Saline County: Wildcat—Stelbar's Mortimer 1, se se 4-16s-1w, Lansing 1965 ft, Miss 2620 ft, abnd 2660 ft.

Sedgwick County: Wildcat—W. N. Bartlett et al's Capron 1, se se se 11-29s-1w, Howard 1660 ft, Topeka 1750 ft, Lansing 2438 ft, Stalnaker 2470 ft, Kansas City 2754 ft, Miss 3289 ft, Dolo 3322 ft, abnd 3370 ft.

Stafford County: Max—Alma Pet. Co.'s Mellies 2, c w½ sw se 36-21s-12w, Congl 3558 ft, abnd 3665 ft.

Stafford County: Zenith—Deep Rock's Henry 4, c w½ se sw 3-24s-11w, Viola 3737 ft, td 3771 ft, 6000 gals acid, pump 35 bbls oil, 35 bbls water.

Deep Rock's Henry 5, c s½ ne sw 3-24s-11w, Viola 3729 ft, td 3768 ft, 4000 gals acid, flow 196 bbls oil, 92 bbls water.

Deep Rock's Crist 2, c w½ se se 4-24s-11w, Viola 3751 ft, td 3773 ft, 6000 gals acid, pump 15 bbls oil, 3 bbls water.

Sumner County: Zyba—Waite Phillips' Sargent 1, c nw nw 18-30s-1e, abnd 4006 ft.

WILDCAT STARTS

Barton County—Gulf's Steinert 1, ne ne sw 4-16s-15w, dr.

Jefferson County—E. V. Jackson's Geiser 1, c n½ nw se 5-9s-21e, dr.

Marion County—Geo. Bruce et al's Schmidt 1, sw se nw 2-20s-2e, sd.

Leavenworth County—O. J. Connell et al's Hopkins 1, c nw se 1-12s-20e, dr.

O. J. Connell et al's Hemphill 1, c nw se 14-12s-20e, dr.

Russell County—Cities Service Oil's Hupfer 1, sw se ne 19-14s-12w, dr.

Oklahoma

Garvin County Test Indicates New Pool

Further testing of wildcat indicates a new pool in Garvin County; another test is scheduled for distillate area of Hughes County; Apache field, Caddo County, apparently being defined; and Earlsboro extended mile north.

Payne County: Portable Drilling Co.'s School 1, SW NE SE 26-18-1e, Ramsey sector, is still a doubtful producer from Hunton lime after finding Wilcox tight and dry. On back-up test the well blew 3,000,000 gas and then showed between 150 and 200 ft of oil in the hole with water. Pipe is being run for conclusive testing.

Garvin County: Pure's Teter 1, SE SW NW 31-4-1e, flowed 83 bbls then 63 bbls in two 15-minute tests from Simpson sand at 3906 ft. No water showed during tests with production through annular space with 2-in tubing in 5½-in pipe. An estimated 7½ million gas accompanied the oil. Corrected total depth of the hole is 3906, this representing a 4-foot penetration from a top of 3902. Further testing is underway.

COMPLETIONS

Carter County: Wildcat—Carter Mullaby's McCain 1, c sw nw 35-4s-3w, abnd 3007 ft.

Creek County: North Bristow—Tilley Drlg. Co.'s Wolf 1, nw ne ne 20-17n-8e, Prue 2392-2415 ft, td 2415 ft, shot 30 qts pump 23 bbls.

Creek County: Glenn—Sinclair Prairie's Berryhill 33, c ne ne 16-17n-12e, Glenn 1405-1570 ft, td 1575 ft, shot 170 qts pump 28 bbls.

Sinclair Prairie's Berryhill 34, se c nw 16-17n-12e, Base Glenn 1581 ft, td 1585 ft, input well.

Sinclair Prairie's Kiefer 45, nw nw ne se 17-17n-12e, Base Glenn 1526 ft, td 1540 ft, repressure well.

Garfield County: North Lucien—Helmerich & Payne's Tate 1, nw nw ne 36-21s-3w, 2nd Wilcox 5494 ft, abnd 5507 ft.

Hughes County: Wildcat — Geo. Royce's Welch 1A, c sw sw 23-9n-8e, abnd 1820 ft.

Hughes County: Unnamed—Western Okla.'s Statham 1, c s½ ne ne 23-9n-24e, abnd 5520 ft.

Kay County: Wildcat—Helmerich & Payne's Wood 1, nw nw sw 19-25n-1w, Osw 3963-90 ft, Miss chert 4331 ft, Miss 4378 ft, td 4380 ft, pb 2004 ft, sqzed and perf 1970-2019 ft, abnd.

Kay County: Dilworth — National Union's Hockman 3, nw sw se 19-28-1e, Wilcox 3295-3300 ft, td 3302 ft, pump 12 bbls.

Kay County: Tonkawa—Ingling & Parker's Blubaugh 1, c nw nw 1-24n-1w, Indicott 2237 ft, td 2251 ft, flow 24 bbls oil and 1,300,000 gas.

Kiowa County: Wildcat—E. M. Thomason's Baker 1, nw ne nw 7-6n-18w, abnd 1035 ft.

Lincoln County: Wildcat—Magnolia's Bouse 1, c nw ne 23-14n-4e, Paw 900 ft, Avant 2250 ft, Dew 2380 ft, Hogs 2675 ft, Layton 2680 ft, Ccb 2990 ft, Cleveland zone 3015-70 ft, Osw 3715 ft, Prue 3735 ft, Verd 3840 ft, Bart 4095 ft, Inola 4195 ft, Booch 4350-60 ft, hard limestone 4754, Mise 4809 ft, Hunton 4811 ft, Viola 4940 ft, Dense 4980 ft, Wx 5015 ft, 2nd Wx 5069 ft, pb 4125 ft, abnd 5090 ft.

Logan County: Guthrie—Sunray's McLoud 2, ne se se 12-17n-2w, Bartles 5148 ft, td 5165 ft, flow 318 bbls.

McClain County: Byers—C. W. Roodhouse's Strawn 1, c ne ne 21-5n-3e, Viola 3518 ft, td 3551 ft, flow 572 bbls.

Okfuskee County: Wildcat—Smith Drlg.'s Ruch 1, nw nw sw 14-12n-10e, Booch 2555-76 ft, cored 2571-76 ft, Cromwell 2904 ft, Pitkin 3018 ft, td 3025 ft, pb 2555 ft, shot 10 qts, pb td 1844 ft, 1,500,000 gas, 600 lbs rock pressure.

Okfuskee County: Okemah—Portable et al's Engelsman 1, nw ne nw 30-11n-10e, Hunton 3646 ft, pay 3690-95 ft, td 3895 ft, flow 70 bbls oil, 170 bbls water.

Oklahoma County: Oklahoma City—F. Russell's Dolores 1, ne sw sw sw 22-12n-3w, Wilcox 6479 ft, td 6537 ft, shot 240 qts pump 257 bbls.

Okmulgee County: Mounds — Bryan Pet. Co.'s Thompson 1, se nw nw 33-16n-11e, Glenn 2003 ft, td 2021 ft, 4,000,000 gas, rock pressure 550 lbs.

Osage County: Hominy Osage—Moore's 4, 110 ft w of c s½ se nw 35-22n-8e, Bartles 2515 ft, pay 2520-35 ft, td 2543 ft, pump 15 bbls.

Payne County: Wildcat—W. H. Riddle's King 1, nw nw ne 6-17n-5e, Osw 3129-3216 ft, Big lime 3110-3235 ft, Prue 3255 ft, Verd 3265 ft, Skin 3430-50 ft, Pink lime 3565-75 ft, sand 3515-45 ft, Bart 3620-50 ft, pay 3640-50 ft, td 3660 ft, pb 3650 ft, shot 30/3630-50 ft, reshot 60/3626-50 ft, 13 bbls.

Pontotoc County: Jesse—L. S. Dennis' McCarty 2, 300 ft e of ne nw nw 12-1n-7e, abnd 150 ft.

Pottawatomie County: Wildcat — C. W. Sharpe's Wells 1, ne se se 1-9n-2e, Paw 1600 ft, Oread 2500 ft, Hogs 3680 ft, Ccb 3970 ft, Osw 4675 ft, Sand zone 4880-5035 ft, chert zone 5060 ft, Mayes 5160 ft, Wood 5160 ft, Hunton 5265 ft, Syl 5423 ft, Viola 5490 ft, Dense 5515 ft, Dolo 5550 ft, Base sand 5742 ft, no show, 2nd Wx 5845 ft, cored 5832-49 ft, cored 5849-66 ft, white sand and green salty sand, td 5866 ft, 3000 gas, acid flow 172 bbls, ¼-in choke.

Pottawatomie County: S. Konawa—Champlin et al's White 2, sw sw sw 9-5n-5e, Hunton 2193-2445 ft, td 2462 ft, acid 2000 gals pump 35 bbls.

Pottawatomie County: North St. Louis—Sinclair Prairie's Peters 1, ne ne se 28-8n-4e, Hunton 3877 ft, td 3932 ft, 3000 gals acid, flow 75 bbls, 1-in choke.

Pottawatomie County: St. Louis—Barnsdall's Lambdin 1, c nw ne 31-8n-4e, Hunton 4383 ft, td 4399 ft, 1000 gals acid, flow 65 bbls, 3/16-in choke.

Roger Mills County: Wildcat—Willie-Anderson's Purcell 1, nw se 9-13n-26w, Crys. Gyp. 865 ft, Blaine Gyp. 900 ft, sand 2310-53 ft, Salty anhy 2090-2400 ft, abnd 3050 ft.

Seminole County: Sasakwa—Eason Grisso's Cohill 1, sw ne nw 7-6n-8e, 2nd Calvin 1212 ft, td 1228 ft, pb 1167 ft, abnd.

Seminole County: Unnamed—Deep Rock et al's Jones 1, ne se se 17-8n-8e, 2nd Cromwell 3263-80 ft, abnd 3280 ft.

Seminole County: S. Earlsboro—Helmerich & Payne's Edwards 1, sw ne se 22-9n-5e, Wilcox 4310 ft, td 4320 ft, pb abnd 3468 ft.

Helmerich & Payne's Edwards 2, nw ne se 22-9n-5e, Earlsboro 3463 ft, td 3492 ft, shot 70 qts, pump 30 bbls oil, 5 bbls water.

Seminole County: E. Earlsboro—F. T. Haddock's Phillips 1, sw nw se 8-9n-6e, Wilcox 4338-44 ft, abnd 4344 ft.

Stephens County: Woolsey—Fair Operating Co.'s Hollaway 1, se sw se 26-2s-6w, abnd 2060 ft.

Stephens County: Comanche—Pace Pet.'s Dilley 1, se se se 22-2s-7w, sand 1960-2010 ft, abnd 2158 ft.

Tulsa County: Sand Springs—J. C. Elledge's Warner 1, nw nw ne 7-19n-11e, Bartlesville 1667-1726 ft, abnd 1726 ft.

OLD WELLS DEEPENED

Carter County: Scholem Alechem—Gulf's Snyder 1, nw nw sw 34-1s-3w, otd 2929 ft, sand 2929-36 ft, sand 2926-42 ft, td 3121 ft, pb 2944 ft, shot 20 qts 2914-44 ft, pump 2 bbls.

Okmulgee County: E. Edna—W. O. Shock's McKee 1, 80 ft so of se sw ne 17-14n-11e, otd 2430 ft, lime 2464-65 ft, abnd 2465 ft.

Osage County: Buell—Berry Bros.' 7, se nw nw sw 28-23n-9e, otd 2280 ft, abnd 2305 ft.

Pontotoc County: Bebee—Superior's Maudlin 4, nw sw nw 32-5n-5e, Viola 2448 ft, otd 2586 ft, td 2642 ft, 2000 gals acid, pump 30 bbls oil, 30 bbls water.

WILDCAT STARTS

Jefferson County—Benson-Benson's Seay est. 1, csw nw se 29-6s-5w, dr.

Kiowa County—W. F. Wilcox Oil & Gas Co.'s Greiser 1, c sw sw ne 35-7n-18w, mchn drlg.

Stephens County—Louis Sikes' Johnson 1, cse nw 17-1n-7w, dr.

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Dawson Viola Lime Strike Has Water Trouble

Water continues as trouble in Viola lime; wildcat to test northwest of Dawson pool; Barada pool test in Hunton lime.

Richardson County: While oil in commercial volumes apparently is present in Viola lime in Skelly's Wilts 1, CE½ NW 10-1n-14e, Dawson pool, a fill-up following treatment returned only a hole full of water. Prior to treatment the lime had indicated about 50 bbls of oil per day. In this regard well is similar to that of Power Oil Co.'s Bohrer 1, CE½ SW NW 10-1n-14e, which also filled with water after first showing for oil.

COMPLETIONS

Sherman County: Wildcat—Carter's Stocker 1, c nw nw 21-13n-13w, Pierre 240 ft, Niobrara 505 ft, Dakota 1220-1795 ft, Lansing 2598 ft, Viola 3125 ft, Simpson 3219 ft, Arbuckle 3334-3405 ft, abnd 3405 ft.

WILDCAT START

Gage County: Ohio's Crook 1, c nw sw 31-2n-7e, dr.

NEW MEXICO

COMPLETIONS

Eddy County: New Pool—N. H. Wills et al's Wills 1, c nw sw 13-20s-28e, elev 3250 ft, salt series 439 to 584 ft, flow and pump 27 bbl 36-gr oil natural, Yates sand 786-906 ft.

Eddy County—Sanders Bros. et al's Leonard 1-E, c se se 33-16s-30e, flow 104 bbls natural ¼-in. sand 2879-2969 ft.

Lea County: Eunice—Ohio's State-McDonald 25, acct. 1, c se ne 16-22s-36e, flow 99 bbl ½-in, shot 300 qts 3790-3940 ft, td 3955 ft.

Lea County: Mattix—Gulf's La Munyon 3, c se nw 29-23s-37e, flow 57 bbls chokes, shot 120 qts 3570-3605 ft, td 3613 ft.

For 15 years we have recommended the use of Barret Magnetic Surveys for preliminary geophysical investigations to guide the application of more costly detail methods.

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WILLIAM M. BARRET, INC.
Consulting Geophysicists
GIDDENS-LANE BLDG. SHREVEPORT, LA.

West Texas

Embar Test Passes Up Showing in Clear Fork

Second deep test on Embar prospect, Andrews County, passes up gas with probable oil in Clear Fork, and tests underway in Fullerton deep area. Two wildcats drilling below 10,000 ft.

Andrews County: Phillips' University-Andrews 1-A, C SW SE PSL 30, Blk 10, Embar prospect, had thick pay zone in Clear Fork, and was drilling lime 7080 ft to explore the section and possibly continue to Ordovician. Drill-stem 6215-55 ft yielded 3,000,000 ft gas with oil spray, and 6200-6340 ft returned 1100 ft oil-cut mud with light gas blow. Gas volume rated 8,000,000 ft daily at close of 1-hour drill-stem test at 6386-6450 ft further enhanced production possibilities. Fourth drill-stem test at 6750-6835 ft returned 2100 ft sulphur water. This wildcat is 1 mile northwest of the company's University-Andrews 1, which showed oil and gas, broken saturation, 5150-5510 ft, and abandoned in Ellenburger 8364-68 ft, with Permian-Simpson contact at 7940 ft, elevation 3228 ft.

In Fullerton pool, Fullerton Oil Co.'s Wilson 2, west offset to discovery, was coring 7170 ft, with 5½-in 7060 ft, and is to proceed to 7200 ft before production test. Drill-stem at 6820-6935 ft returned oil-cut mud and small flow gas, elevation 3388 ft, and Wilson 3, north offset to discovery, was drilling at 6605 ft, elevation 3378 ft, having topped Yates 4 ft and 14 ft low, respectively. Magnolia's Ralph 1, ¾ mile west outpost, made 7 drill-stem tests at intervals between 6845 and 7350 ft, yielding gas- and oil-cut mud with small volume sweet gas in majority of tests, and was coring lime 7380 ft. It is nearing the water level established by the initial well, and when this is reached will be plugged back for completion. Ralph 1 logged Yates at 2910 ft, elevation 3393 ft, 11 ft low, and is level with discovery on Lower Permian markers.

Deep Prospects: Shell's Sealy-Smith 1, northeastern Ward County, was drilling dry lime at 10,040 ft. Plymouth Oil Co.'s Alford 1, eastern Upton County, drilling hard lime and chert 10,320 ft. Broderick & Calvert and Geo. P. Livermore's Bryant 1, Midland County, was drilling black shale 5525 ft, with top of Clear Fork tentatively called at 5235 ft, elevation 2699 ft.

COMPLETIONS

Andrews County: North Cowden—Atlantic and Sun's Holt 1-E, c sw sw T&P 8, blk 43, T-1-N, pump 84 bbls oil, 130 bbls water, 4490-4705 ft, td 4770 ft.

Cochran County: Slaughter—Devonian et al's Duggan 14-B, nec lab 20, leag 55, Oldham CSL, flow 1140 bbls 2½-in, acid 12,500 gals 5024-60 ft.

Honolulu et al's Igoe-Smith 35, nwc lab 7, leag 50, Scurry CSL, flow 1445 bbls 2½-in, acid 10,000 gals 4975-5037 ft.

Honolulu et al's Igoe-Smith 37, lab 14, flow 872 bbls 2½-in, acid 10,000 gals 4991-5029 ft.

Honolulu et al's Igoe-Smith 40, swc lab 6, flow 1256 bbls 2½-in, acid 10,000 gals 4972-5013 ft.

Texas Co.'s Mallet 4-F, nec lab 15, leag 51, Scurry CSL, flow 752 bbls cas, acid 12,000 gals, td 5077 ft.

Crane County—Church & Fields-Bert Weekley et al's University-Collett 5, 660 ft out nec lse, sec 34, blk 30, pump 546 bbls, shot 480 qts 3030-3154 ft.

Crane County: Sand Hills—Humble's Tubb 66, 440 ft from s and 1980 ft from e PSL 5, blk 32, flow 1670 bbls 2-in, acid 1000 gals, perf 4420-50 and 4570-90 ft, td 4602 ft.

Crockett County: Wildcat—Sun's Shannon 1, 660 ft out swc w 1427-ac of n 1800-ac leag 1, Archer CSL, elev 2541 ft, Yates 1135-1231 ft, lime 2012 ft, abnd 2089 ft.

Crockett County: Hoover—Geo. Atkins-J. S.

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Pittman's Schull 1, sec GC&SF 3, blk 1, elev 2368 ft, abnd 2025 ft.

Ector County: Embar—Phillips' Cowden-Embar 5, c sw sw T&P 9, blk 44, T-1-N, flow 84 bbls oil, 21 bbls water, shot 131 qts 4212-66 ft, td 4272 ft.

Ector County: Foster — Sinclair Prairie's Gist 9, nw sw ne T&P 44, blk 42, T-1-S, shot 480 qts 4160-4265 ft, abnd 4290 ft.

Hockley County: Slaughter — Honolulu's Mallet 25-B, swc lab 25, leag 48, Edwards CSL, flow 1153 bbls 2½-in, acid 10,000 gals 4945-5005 ft.

Magnolia's Mallet 16-E, nwc lab 11, leag 49, Scurry CSL, flow 1203 bbls cas, acid 10,500 gals 4957-5010 ft.

Magnolia's Mallet 17-F, nec lab 8, leag 48, Scurry CSL, flow 1720 bbls cas, acid 10,500 gals 4970-5020 ft.

Howard County—Sinclair Prairie's Dodge 78, sw ne sw T&P 11, blk 30, T-1-S, flow 162 bbls 2-in, shot 700 qts 2617-2839 ft.

Pecos County: Abell—Magnolia's Lutz 1, c lot 2, H&GN 27, blk 9, pump 115 bbls oil, 33 bbls water, acid 4000 gals, Permian perf 3840-90 ft, td 5873 ft.

Magnolia-Stanolind's McKee-Texmex 4, swc lot 7, H&GN 24, blk 9, 731,000 ft gas open 2-in, acid 500 gals Simpson (Waddell sand) perf 5730-45 ft, td 6285 ft.

Pecos County: Apco—Humble's Gregg 1, c 6¼ w¼ H&GN 101, blk 10, flow 1067 bbls ⅞-in, acid 1000 gals, Ellenburger perf 4666-4711 ft, td 4718 ft.

Pecos County: Taylor-Link—Dave Breeding et al's University 1-11, c se se sec 11, blk 18, flow 311 bbls oil and 10 bbls water ¾-in, acid 4000 gals 1485-1615 ft.

Scurry County: Sharon—R. J. Byrd et al's Wade 1, sw sw se H&TC 141, blk 97, pump 172 bbls, shot 840 qts 2238-2465 ft.

Winkler County: Emperor—C. V. Lyman et al's Cowden-Humble 2, c se se PSL 39, blk B-5, flow 288 bbls 1-in, shot 520 qts 2665-3030 ft.

Winkler County: Keystone—Richardson and Bass' Bashara 3, ne ne nw PSL 21, blk 77, flow 628 bbls 1-in, shot 480 qts 3230-3380 ft, td 3408 ft.

Richardson and Bass' Walton 8, c ne sw PSL 1, blk B-3, flow 295 bbls oil, plus 15% water 2-in, shot 430 qts 3290-3465 ft, td 3485 ft.

OLD WELLS DEEPENED

Upton County—McCamey-Stanolind's Burleson 11, sec 2, J. Nidever sur, otd 2050 ft, pump 58 bbls oil, plus 10% water, re-acid 2025-2153 ft.

Stanolind's Burleson 23, 990 ft from n and 4620 ft from e lines sec 2, J. Nidever sur, otd 2065 ft, pump 56 bbls oil, 4 bbls water, td 2121 ft.

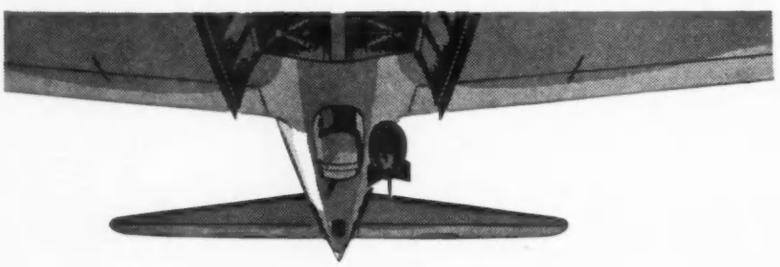
Ward County—T. P. Coal & Oil Co.'s Barker 14, PSL 27, blk B-29, otd 2311 ft, pump 36 bbls, td 2500 ft.

Winkler County: Keystone — Peck-Croft-Richardson's Keystone-Sun 2, 330 ft from s and 1320 ft from e lines sw PSL 4, blk 77, otd 3467 ft, flow 20 bbls 2-in, shot 45 qts 3466-87 ft.

WILDCAT STARTS

Pecos County—Addison Oil Co.'s University 1, nw nw nw sec 17, blk 18, lcn.

Ward County—Magnolia's Sealy 1-60, c sw sw GMMB&A 60, blk F, mim.



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No other country can compare with America's war production, now that we're really rolling. No other has the men, the machines—or the **electric power.**

It takes a tremendous lot of power to turn the wheels that turn out tanks, planes and ships for all the United Nations—but America is power-**full.**

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Here is a business which, like the oil business, was **built** the American way—by local enterprise and individual investment—dedicated to **defending** the American way **until the last bit of air-mail has been delivered to the last dictator!**

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GENERAL OFFICES—BEAUMONT, TEXAS, AND BATON ROUGE AND LAKE CHARLES, LOUISIANA

North Texas

Shallow Archer Well Flowing by Heads

Shallow oil discovery in central Archer County. First Ordovician producer for Nebtex pool, Clay County, flows by heads, and confirmation will for Spring pool makes prolific flow after acid.

Archer County: W. E. Production Co.'s Ebnother-Shell 1, SE NE Block 102, Harris Club Ranch, 5 miles northwest of Archer City, flowed oil by heads while running tubing from sand 1277-80 ft, opening a new pool. Nearby failures indicate small area.

Clay County: Bridwell Oil Co.'s Myers 3, ½ mile east of Bend production in the Nebtex 2-well pool, flowed oil, gas and wash-water by heads for 11½ hours while cleaning, then quit. Production is from Ellenburger, topped 6048 ft, 19 ft low to Myers 1, total depth 6067 ft, with 5½-in 6050 ft. Oil saturation was also logged in Mississippian, topped at 6019 ft. Company has lease on 1800 acres.

Continental's Spring 2, ¼ mile northeast of Spring discovery, responded to 8000 gallons acid in Bend 5595-5645 ft, flowing 574 bbls 46.5-gr oil the first 4 hours and 563.76 bbls second 4-hour period on ¾-in choke, gas-oil ratio 677/1. Official retest of discovery, which was acidized with 7000 gals last week in Bend 5587-5630 ft, showed 880 bbls 8 hours ¾-in, gas-oil ratio 625/1. Company is starting third test on its 2808-acre Spring lease, and has a direct pipe line from pool to its Wichita Falls refinery.

Montague Wildcats: Continental's Mueller 1, 6 miles east of Bowie, failed to make producer after using 4000 gallons acid in Viola lime 6599-6621 ft, and was drilling dry lime 6735 ft. Sinclair Prairie's Jones 1, deepest of trio of wildcats being drilled in county by company, drilling shaley-lime 8520 ft, having tested dry at 8156-8208 ft in Simpson, topped at 8147 ft; Collier 1 drilling 7850 ft, testing dry at 7713-39 ft in Viola, topped 7415 ft. Sinclair Prairie's Sanders 1, 1¼ miles northwest of its Clingingsmith 5-well pool, returned 2080 ft oil and 270 ft brackish water when tester used in conglomerate saturation at 5887-97 ft in Bend, topped 5792 ft, 20 ft high to nearest producer. Three previous drill-stem tests above the conglomerate reutrned oil and brackish water.

COMPLETIONS

Archer County: Scotland — Southern Pet. Explo. Co.'s Wilson 6-A-C, 100 ft from e and 990 ft from s lines lot 1, ATNCL 73, pump 8 bbls oil, 11 bbls water, acid 6000 gals, Bend perf 5200-24 ft, td 5769 ft.

Archer County—Guy J. Scholl et al's Perkins 1, TE&L 1595, pump 8 bbls, shot 4 qts 1266-71 ft.

Baylor County: Rendham—Jordan Pet. Co.'s Fayette 4, 3160 ft from w and 1840 ft from s lines Fayette CSL 148, pump 85 bbls oil, 25 bbls water, acid 3000 gals, Canyon 3025-27 ft.

Clay County: Wildcat—W. R. Lyons and Webb-Taylor Drlg. Co.'s Lyons 1, 1650 ft from

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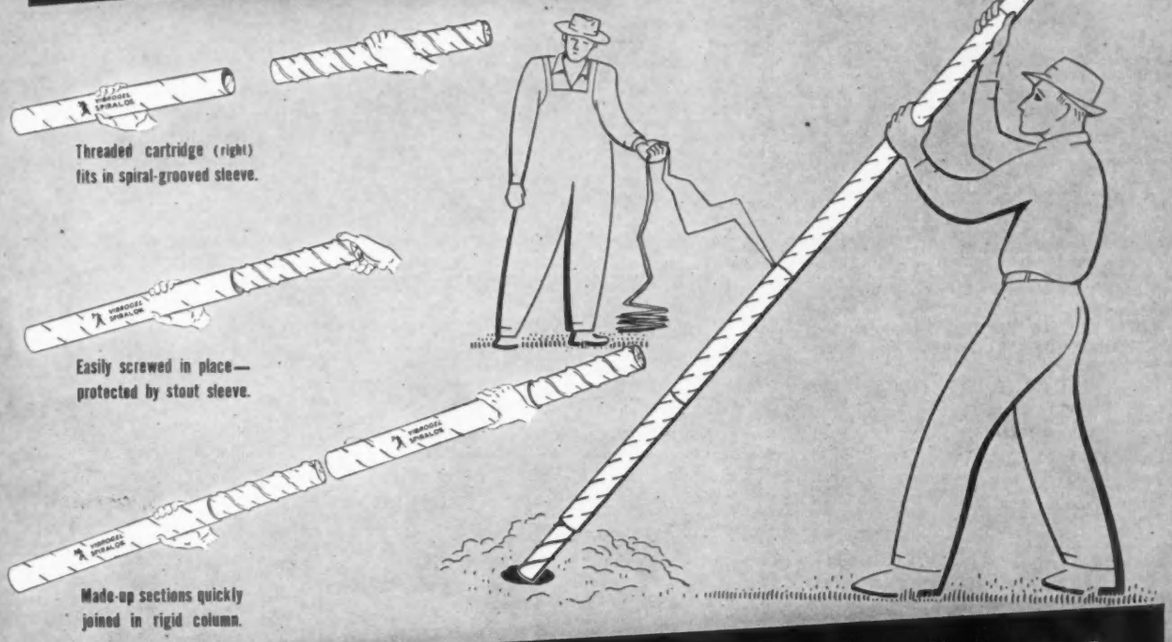
Threaded cartridge (right) fits in spiral-grooved sleeve.
Easily screwed in place—protected by stout sleeve.
Made-up sections quickly joined in rigid column.

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You never saw a string of powder so rigid. You never saw a seismic charge made up so quickly. And you never saw a simpler, more satisfactory method of handling dynamite in geophysical work.

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*Reg. U.S. Pat. Off.

N-21

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e and 350 ft from s lines blk 90, Byers subdiv, abnd 1880 ft.

Webb-Taylor Drlg. Co.'s Ryan 1, swc ne blk 11, Byers subdiv, abnd 1218 ft.

Clay County — Akin-Dimock-Costley's Patrick 1-C, nec of s-40 ac of w-70 ac of blk 82, Byers subdiv, pump 36 bbls, 1112-18 ft.

Bridwell Oil Co.'s Saner-Lomax 16.400 ft from ne line GC&SF 9, and 1002 ft se No. 15, pump 30 bbls 1134-41 ft.

Perkins-Cullum's Taylor 8, 1270 ft from se and 1385 ft from ne lines blk 37, Bacon subdiv, abnd 1301 ft.

Knox County: Wildcat — Seitz-Comegys & Seitz' Winfield 1, sw sw nw BBB&C 181, abnd 1834 ft.

Throckmorton County: Wildcat — Humble's Cain 1, nec s½ TE&L 1632, Bend 4249 ft, chert 4845 ft, abnd 4846 ft.

Jones-Stasney-Groover-Rose's Brockman 2, swc blk 94, Comanche Indian Reserve, Bend 4296 ft, Marble Falls 4703 ft, abnd 4735 ft.

Wichita County: K-M-A Ellenberger—Buffalo Oil Co.'s Ferguson 6-E, 330 ft from s and 440 ft from e lines blk 5, Spillers sur, flow 656 bbls ¼-in, acid 1500 gals, Ellenberger 4242-4319 ft.

Buffalo's Ferguson 8-E, 2230 ft from s and 330 ft from e lines blk 3, Spillers sur, flow 952 bbls ¼-in, acid 1500 gals Ellenburger 4256-4312 ft.

Wichita County—Culbertson Co.'s Waggoner Bros. 88, BS&F Sur A-394, sec 13, abnd 369 ft.

Young County—Cable Oil Co.'s Williams 15, 825 ft from n and 150 ft from w lines e-60-ac of W. Adams sur A-1364, pump 5 bbls 566-82 ft.

Kerlyn-Phillips' Sheppard 1, nec TE&L sec 1962, pump 78 bbls, shot 10 qts 2910-33 ft.

OLD WELLS DEEPENED

Wichita County: K-M-A Ellenburger—Falls Ref. Co.'s Tidwell 2-E, 415 ft from n and 330 ft from e lines lse, Spiller sur, otd 4391 ft, pump 25 bbls, td 4422 ft.

Young County—Ray Oil Co.-J. P. Nash's Wooten-King 1, TE&L 1976, otd 3800 ft, flow 608 bbls ¾-in, td 4164 ft.

WILDCAT STARTS

Archer County — W. E. Production Co.'s Mrs. A. Wilhelm 1, 1904 ft from s and 660 ft from w TE&L sec 2420, lcn.

Clay County—F. H. Gohlke et al's Householder 1-B, 330 ft out swc n½ blk 30, Byers sur, lcn.

The Texas Co.'s Dallas Jt. Stock Land Bank 1, 660 ft from ne and 3200 ft from se lines of nw 440 ac tr, J. Duncan sur A-112, lcn.

Montague County—Continental's O. C. Hildreth 1, 856 ft from s and 509 ft from w lines E. T. Ry sec 53, A-250, lcn.

Young County—Shell's J. W. Bullock 1, 467 ft out nec TE&L sec 343, 7¾ mi nw of New Castle, lcn 5100-ft test.

TEXAS PANHANDLE

COMPLETIONS

Gray County—Skelly's Taylor 11, H&GN 7, blk B-2, pump 17 bbls 2841-81 ft, td 3182 ft.

Hutchinson County—Buffalo Oil Co.'s Cockrell 7, TC 3, blk M-21, pump 48 bbl, shot 410 qts 3020-3100 ft, td 3110 ft.

Harry Stekoll et al's Whittenburg (north) 1-C, TC 37, blk M-23, pump 59 bbl 2935-3045 ft.

WEST CENTRAL TEXAS

COMPLETIONS

Jones County—Fain-McGaha Oil Corp.'s Dunagan 1, 330 ft out nec T&P 24, blk 17, Saddle Creek 2195-2225 ft, abnd 2304 ft.

Hedrick Oil Co.'s Morrison 3-B, 1650 ft from n and 330 ft from w lse, G. Martinez sur, flow 192 bbl natural ¾-in, sand 2219-32 ft.

Palo Pinto County—Ernest Lloyd et al's Edgin 2, 1260 ft e and 150 ft n of nwc T. Harrell sur, but in J. J. Metcalf sur A-341, abnd 1400 ft.

Shackelford County—C. J. Kleiner et al's Dawson-Conway 2-B, nwc s½ ET 146, pump 4 bbls oil, 5 bbls water, shot 10 qts 1398-1410 ft, td 1738 ft, pb 1410 ft.

Roeser-Pendleton-Continental's Cook 10-A-117, ET 117, pump 97 bbls natural, sand 1698-1708 ft.

Sabens & Pinkston's Shotwell 1-B, T&P 59, blk 14, pump 50 bbl natural sand 1586-1614 ft.

Stephens County—Elgin B. Wilson et al's Sandidge-Coody 1, T&P 47, blk 5, abnd 4110 ft.

Taylor County—W. J. Walsh et al's Young 2, 447 ft from w and 1750 ft from n lines H. S. Day sur, pump 10 bbls oil, 80 bbls water, acid 1000 gals 2373-2409 ft.

OLD WELL DEEPENED

Palo Pinto County—Hickok P&D Co.-Harry Reynolds' Gauldin 1, 660 ft from e and 2036 ft from s lines L. P. Elder A-1474, otd 2425 ft, 7,300,000 gas, 1660 lbs rock pressure, sandy-lime 4115-27 ft, td 4130 ft.

WILDCAT STARTS

Callahan County—W. D. Austin et al's R. D. Williams 1, 150 ft out of sec SP 301, lcn.

Mikeworth & Smith's Boatright 1, 150 ft from n and 750 ft from e lines sw D&DA 12, elev 1534 ft, dr 405 ft.

East Texas

Anderson Wildcat Makes Commercial Pumping Well

Anderson County discovery to make commercial pumper. Wildcat failures in Hopkins, Wood and Angelina counties. District has unsually large quota of active Trinity prospects.

Anderson County: Magnolia's Campbell 1, first test for the Concord structure, swabbed initially at rate of 258 bbls pipe line oil daily, and later was averaging 150 to 165 bbls daily. Production is from broken Woodbine sand 4522-40 ft, having plugged back from 4669 ft without testing lower sand for water. The oil tests 16.9 degrees gravity, being the heaviest found to date in Woodbine. Company is adding to lease tankage to equip well for pumping, and will launch further exploratory tests on its large lease block.

Wildcat Failures: Rancho Oil Co.'s Stribling 1, Hopkins County, quit in water sand 4615 ft. In Wood County, B. B. Orr et al's Carter 1 abandoned 4880 ft. Jack W. Frazier et al's Angelina County Lumber Co. 1, Angelina County, entered dry Midway at 4890 ft, and abandoned at 5103 ft.

COMPLETIONS

Henderson County: Opelika — Lone Star-Shamrock's Tullos 2, center of 67½-ac lse, J. M. Eakin sur, 145,000,000 gas, 55 bbls distillate per million, acid 5000 gals Pettit perf 8282-95 and 8368-86 ft, td 8427 ft.

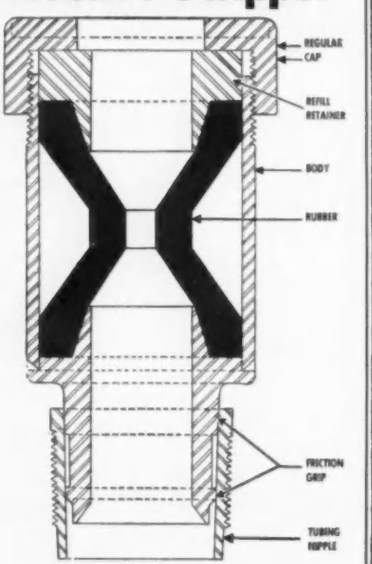
Smith County: Chapel Hill—Sinclair Prairie's Phillips 1, 689 ft from n and 660 ft from e lines 81.43-ac tr, D. Parchman sur, 339 bbls 41-gr 5/16-in, acid 4000 gals, Pettit perf 8052-84, 8158-75 and 8204-44 ft, td 8268 ft.

Texas Co.'s Walton 1, 660 ft out sec 171.61-

Easy to clean Sucker Rods with this effective Stripper

This Standard Type Sucker Rod Wiper is comprised of a 4" housing in which is dropped a replaceable spool-shaped refill rubber that wipes ⅝" and ¾" rods. When pump reaches surface, the body with Wiper follows pump up. No delay in coming out of hole.

The Refill is made of same tough rubber as used in Patterson-Ballagh Protectors.



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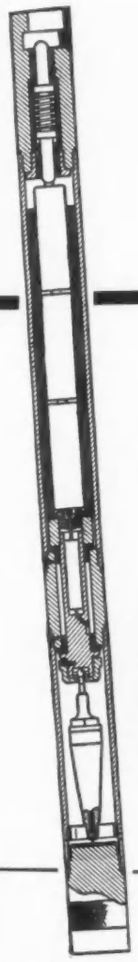

A Performance Record with the New SPERRY-SUN

E EA-SY C INCLINOMETER

(Electro-Chemical)

U. S. Patents 2,240,417; 2,246,319 and others pending

This letter from the Louisiana fields tells its own story. And it's just one example of the kind of job the new E-C Inclinometer is doing for a growing number of drillers!

"The crews all prefer to run the E-C, as it has given less trouble than any other instrument (inside or open hole). . . . We can take three records in less time than it used to take to make one on the other instruments. Records are now taken every 125 ft. rather than 250 to 300 ft., and consequently the hole is better drilled. We have cut our survey time in half. At the cost of rig time, this is a great saving."

These days, when fast, efficient drilling is a **must**—you can't afford to overlook this new development. Full information at any of our offices.

FACTS

ABOUT THE E-C INCLINOMETER

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OPERATES ON ORDINARY MEASURING LINE. Outside diameter only 1-5/16". Passes through any tool joint.

PERMANENT RECORDS — INSTANTLY. Can be read immediately on removal. No development required. Records are permanent and indestructible.

MULTIPLE RECORDING. Several records at various depths can be made each time the instrument is lowered into the hole.

REASONABLE RENTAL CHARGES. No higher than those of other inclinometers which are not self-checking and do not permit multiple recording.

LOWEST OPERATING COST. Minimum loss of rig time.

SAMPLE RECORD

Note difference in size of white dots. Size of dot depends on length of time instrument is allowed to remain at rest. Thus records can be made at several different depths, and the record at any depth definitely identified by the size of the dot.

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Customers who are more or less disgusted with us have no idea how disgusting we would be if we hadn't learned quickly to do mental handsprings and miracles without mirrors. We ought to be good when this war is over. We went along for 34 years without being dunked into as many dilemmas as are now our daily quota — which serves us right for suggesting that you TRY PELCO FIRST. Keep it up. Without your problems we couldn't gripe — and how wonderful it is to gripe! They can't do it in Germany or Japan.

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ac lse, P. G. Landers sur, 315 bbls 41.6-gr oil, ¼-in, acid 4000 gals Pettit perf 8175-8206 ft, td 8269 ft.

Upshur County: Wildcat—A. H. Carpenter et al's Williams 1, 199.7-ac tr, Estevan Moro sur, elev 464 ft, Pecan 2662 ft, Austin 3942-4025 ft, Woodbine 4198 ft, abnd 4411 ft.

Wood County: Hawkins—R. W. Fair et al's Hamill 2, 56.78-ac lse, J. P. Moseley sur, 269 bbls, ¼-in, Woodbine perf 4707-30 ft, td 4915 ft.

Humble's Atkins 10, 467 ft ne of s line and 1422 ft from e line 341.41-ac lse, J. P. Moseley sur, 444 bbls ¼-in, Woodbine perf 4666-72 and 4841-50 ft, td 4879 ft.

Humble's Ponder 4, 105.11-ac lse, 400 bbls ¼-in, Woodbine perf 4742-48 and 4847-53 ft, td 4867 ft.

Humble's Rutherford 1, 1975 ft from s and 493 ft from w lines 139-ac lse, H. E. Watson sur, 443 bbls ¼-in, Woodbine perf 4564-70 and 4739-50 ft, td 4837 ft.

WILDCAT STARTS

Angelina County—C. B. Bunte et al's Cameron 1, 3360 ft from nw and 7260 ft from sw lines W. B. Anderson sur, 2808-ac tr, 9 mi se Zavalla, mim for Wilcox test.

Robertson County—Kirby and Morrison's Martin 1, 467 ft from nw and sw lines of 225-ac tr, north corner W. R. Cox sur, ½ mi east of Easterly, dr 2310 ft.

Wood County—Amerada's Kennemer 1, 157.35-ac tr, Joseph Knight sur, 8 mi west of Winnsboro, mim for 8500-ft Trinity test.

Southwest Texas

New and Deeper Sand Found at South Caesar

Production from deeper Carrizo-Wilcox sand and 6000-ft northeast extension of South Caesar, Bee County, was had with Luling Oil & Gas Co.'s Slick 1-W-B flowing 10 bbls hr while cleaning, 70 percent wash water and rest 37.6-gr green oil; pressures 375 tubing, 1200 casing, ⅛-in choke, perf 6642-46 ft. Logged gas sand 6609-12, oil sand 6612-54 and salt water to 6673-ft bottom.

Jackson County: Magnolia's Gordin 1, Lot 12, Sec. 3, North LaWard, is producer in new sand perf 5622-24 ft.

SOUTHWEST TEXAS

COMPLETIONS

Duval County: Gov't Wells—Sun's Weiderkehr 78-A, sec 55, abnd 2972 ft.

Duval County: Hoffman—Magnolia's Well 30 (113), sec 113, abnd 2685 ft.

Duval County: Kohler—Wheeler & Bunn's Peters 8-B, sec 397, 21 bbls 21-gr, on pump, perf 1873½-79½ ft, sand 1866 ft, td 1882 ft.

Duval County: Wildcat—Mills Bennett's Benavides 3, lot 13, sec 18, Cole sub, 4 mi ne Bruni, abnd 2930 ft.

Jim Hogg County: Colorado—Humble's King-Colorado 63-B, Las Moretas gr, 159.94 bbls 46.5-gr, 3/16-in, 360 lbs tp, 850 lbs cp, gas/oil ratio 365/1, sand 3042½-52 ft, 4½-in 3040 ft, td 3052 ft.

V. F. Neuhaus' Trevino 4-G, sec 37, abnd 2900 ft.

Starr County: Garcia—Sun's Garcia 2-A, Por 97, 165.6 bbls 41.9-gr, 9/64-in, 615 lbs tp, 740 lbs cp, gas/oil ratio 700/1, sand 3769-71 ft, 5½ 3755 ft, td 3771 ft.

Starr County: Sun—Humble's Saenz 1-B, Los Retachez gr, 136.56 bbls 45.6-gr, ¼-in, 775 lbs tp, 700 lbs cp, gas/oil ratio 460/1, sand 4614-57 ft, 5½ 4646 ft, td 4660 ft.

Sun's F. Margo 4, Los Retachez gr, 192 bbls 45.5-gr, 5/32-in, 325 lbs tp, 1000 lbs cp, gas/oil ratio 450/1, sand 4677-4701 ft, 5½ 4684 ft, td 4701 ft.

Starr County: Yturria—Sun's Yturria 3-A, Por 100, 117 bbls 41.8-gr, 9/64-in, 425 lbs tp, 475 lbs cp, gas/oil ratio 494/1, sand 4208-15 ft, 5½ 4201 ft, td 4215 ft.

Webb County: Wildcats—Killam & Salinas' Bruni 1, blk 2, Brown sub, Albercas gr, 10 mi se Mirando City, abnd 1110 ft.

Rowe & Delange's Buckley 1, sec 203-1/3, 15 mi n Oilton, abnd 2517 ft.

WILDCAT STARTS

Duval County—Atlantic's Welder (Martex) 1, 915 ft n, 2670 ft e lines sec 221, 3 mi w Fitzsimmons field, 4500-ft test.

Magnolia's DCRC 1, 660 ft e, 1980 ft n lines sec 287, 10½ mi nw Freer, dr 1670 ft on 2500-ft test.

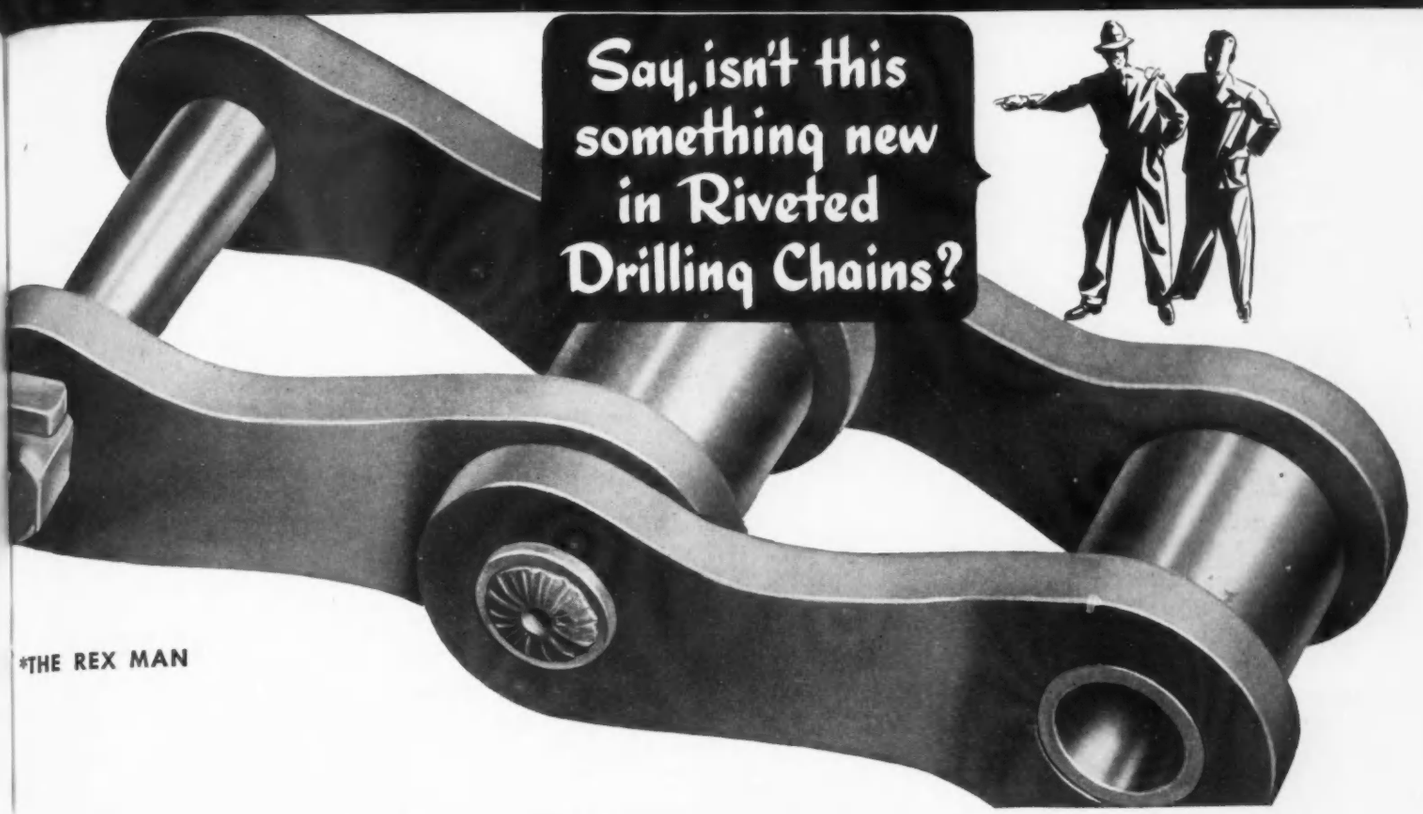
Texas Co.'s Timmon 1, 660 ft s and e lines 152.8-ac lse, A. Munoz sur 38, 6 mi n Freer, 3500-ft test.

Webb County—H. E. Murray's Adami 1, 330 ft n and w lines nw sw sur 337, 20 mi nw Freer, 1150-ft test.

LOWER GULF COAST

COMPLETIONS

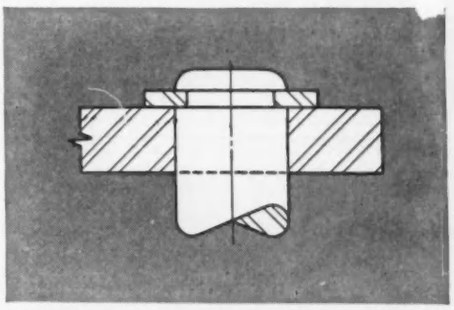
Colorado County: Sheridan—Shell's Plow 4, O. K. Winn sur, 3700 ft n extension, 173.2 bbls 56.4-gr condensate, ¼-in, 2400 lbs tp, 2550 lbs cp, 2% sw, gas/oil ratio 17,200/1,



"NEW" ISN'T THE HALF OF IT, I* Told Him

① **YOU MAY HAVE** thought that there was no such thing as 100% satisfactory riveted oil well chain, but Mister, prepare yourself to see something entirely new and entirely satisfactory in riveted chain design—the new Rex riveted oil well chain!

② **WELL, IF YOU'VE** got something new, let me know about it. I like to use both types—for on some jobs, cotters on cotter-type chains will occasionally work loose, and shear off. This, of course, means a lot higher chain cost on those jobs.



③ **WELL HERE'S THE STORY,** I said. The new Rex riveted oil well chain is remarkably easy to take apart; its rivet head is so small that when the pin is driven out, the head cannot score the sidebar hole or inner surface of the bushing.

④ **YOU DON'T NEED** to go any farther—I know what that means . . . that I can take apart a Rex riveted chain without destroying the sidebar, as with other types of riveted chains. I save one link—as much as a third of a foot of chain.

⑤ **I TOLD YOU IT WAS REALLY NEW.** And talking about something that's new, here's the book that tells the story about a new line of oil field water pumps that are sensational at the job of keeping water on the move around drilling rigs.

⑥ **IN FACT,** this line of Rex Pumps is so dependable you can start the motor and forget 'em. Sizes range all the way from 3,000 gallons per hour to 125,000 gallons per hour. Better check up on them too—while you're at it!

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REX CHAIN BELT COMPANY

perf 9360-92 ft, sand 9360 ft, td 10,838 ft, opens new Wilcox sand.

De Witt County: Yorktown: Discovery — Adams O&R Co.'s Berch 1, J. Kimberling sur, 3 mi e Yorktown, 6,000,000 gas, 180 bbls 63-gr condensate, ¼-in, 2000 lbs tp, cas sealed acidized, perfs 7192-7204 ft with 1000 gals. Wilcox series 7070 ft, td 9153 ft, opens new Wilcox field.

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Golind County: Wildcat—Magnolia's Wilkinson 1, W. P. Miller sur, ½ mi n Berclair, abnd 5398 ft.

J. M. Wren's Yanter 1, M. J. Ybarbo gr, 1 mi ne Charco, abnd 4508 ft.

Hidalgo County: Discovery—McCollum Oil Co. & L. M. Lockhart's Sweeney 1, blks 3 & 5, Wayne Woods sub, 4½ mi s Donna, dual sand, perf 5505-10 ft and 5953-98 ft, 3/16-in, large vol gas, est 200 bbls condensate, 1100 lbs tp, 1220 lbs cp, td 6567 ft, opens field.

Jackson County: North LaWard—Glenora Oil Co.'s Olsovsky 1, blk 9, sec 2, 110.2 bbls 25.5-gr, 10/64-in, 580 lbs tp, 1250 lbs cp, gas/oil ratio 870/1, perf 5202-20 ft, td 5239 ft.

Gulf's Four-Way 1, sec 3, 247.52 bbls 26.8-gr, ¼-in, 225 lbs tp, 690 lbs cp, gas/oil ratio 263/1, sand 5203 ft, td 5220 ft.

Gulf's Pickering 2, P. Scott sur, 158 bbls 26.2-gr, ⅛-in, 625 lbs tp, 600 lbs cp, gas/oil ratio 350/1, perf 5204-10 ft, td 5222 ft.

Humble's Four-Way 3, lot 76, sec 3, 490.6 bbls 25.1-gr, ¼-in, 625 lbs tp, 650 lbs cp, gas/oil ratio 166/1, sand 5209-15 ft, td 5215 ft.

Humble's Four-Way 1-B, lot 77, sec 6, 82.5 bbls 25.2-gr, ⅛-in, 500 lbs tp, cas sealed, 3% sw, gas/oil ratio 648/1, perf 5200-21 ft, td 5222 ft.

Magnolia's Gordin 18, lot 4, sec 1, 148.8 bbls 25.4-gr, 7/64-in, 600 lbs tp, 800 lbs cp, gas/oil ratio 264/1, perf 5210-15 ft, td 5227 ft.

Jackson County: West Ranch—Magnolia's West 241-A, Garcia gr, 26,000,000 gas, perf 5014-88 ft, td 5100 ft.

Jackson County: West Ganado—Pure's Powers 2, Menefee sur, 97 bbls 24.5-gr, ⅛-in, 500 lbs, gas/oil ratio 230/1, perf 4752-62 ft and 4767-72 ft, td 4850 ft.

Pure's Kuretsch 3, Menefee sur, 105 bbls 24.5-gr, ⅛-in, 100 lbs tp, 500 lbs cp, gas/oil ratio est 200/1, perf 4744-68 ft, td 4848 ft.

Jim Wells County: Ben Bolt—Heyser & Heard's Garcia 7, sec 55, 181 bbls, 3/16-in, 415 lbs tp, 1225 lbs cp, gas/oil ratio 525/1, perf 5245-51 ft, td 5256 ft.

H. H. Howell's Whatley 2, worked over and recompleted in new sand, 321 bbls 34-gr, 3/16-in, 500 lbs tp, 630 lbs cp, gas/oil ratio 303/1, perf 4503-13 ft with 11 shots, elev 221 ft, sand 4503 ft, td 5671 ft. Whatley 3 also reworked and completed in this sand.

Jim Wells County: Seeligson—Magnolia's Seeligson 29, Los Jarboncillos gr, gas/condensate well, shut in not gauged, cleaned thru 7/64-in, 2900 lbs tp, 2650 lbs cp, Shut in 3200 lbs, perf 6420-22 ft, sand 6420-30 ft, td 7013 ft, opens new Frio sand.

Shell's Seeligson 3, sec 48, 147 bbls 41.5-gr, 7/64-in, 1200 lbs tp, 1300 lbs cp, gas/oil ratio 650/1, 5½-in 5975 ft, td 6009 ft.

Sun's Canales 8, sec 182, 143.31 bbls 39.9-gr, 7/64-in, 1220 lbs tp, 1925 lbs cp, gas/oil ratio 1298/1, perf 5204-8 ft, sand 5192 ft, td 5984 ft.

Sun's Miller 5, sec 65, 148.68 bbls 43.6-gr, 7/64-in, 1140 lbs tp, 1275 lbs cp, gas/oil ratio 800/1, perf 5958-70 ft, td 5982 ft.

Kleberg County: Stratton—Humble's King-Paso Ancho 10, L. Rivas gr, 141.93 bbls 41.9-gr, ⅛-in, 1000 lbs tp, 1050 lbs cp, gas/oil ratio 751/1, sand 6601-23 ft, td 6645 ft.

Live Oak County: Wildcat—Yegua Oil Co.'s Watson & Shipp 1, P. Salinas sur 11, abnd 5309 ft.

Nueces County: Agua Dulce — Richardson Pet Co.'s Beatty 1, sec 185, 40,000,000 gas, spray condensate, 5½ 7045 ft, td 7085 ft.

Sun's Harlan 1, sec 174, 131.04 bbls 41-gr, 7/64-in, 1100 lbs tp, 1400 lbs cp, gas/oil ratio 750/1, perf 7076-79 ft and 7091-94 ft, td 7113 ft.

S. E. Wilson et al's Rivers 2-B, 136 bbls, ⅛-in, 475 lbs tp, 1300 lbs cp, perf 5725-35 ft, td 5945 ft.

Nueces County: Banquette—Osborne & Mid-Continent's Bird 1-A, J. V. de Barrera gr, sw outpost, abnd 7151 ft.

Nueces County: Wildcat—Wellington & Seaboard's Michalk 1, blk 1, sec 6, Luby sub, 4 mi se Driscoll, abnd 7002 ft.

Refugio County: McFaddin—Cox & Hamon's Marberry 1, N. Fagan sur, 109.02 bbls 26.9-gr, ⅛-in, 610 lbs tp, 850 lbs cp, gas/oil ratio 353/1, perf 5632-37 ft, td 5664 ft.

Refugio County: Rooke Discovery Well—Hewit & Dougherty's Rooke 6-A, Aldrete gr, 4 mi sw LaRosa, 357 bbls 39.1-gr, 3/16-in, 1210 lbs tp, 1460 lbs cp, gas/oil ratio 933/1, perf 7135-39 ft, sand 7121-45 ft, td 7656 ft; new Frio field.

WILDCAT START

Nueces County—Phillips' Molina 1, 660 ft e, 660 ft e, 674 ft s lines, lot 14, sec 5, Guggenheim & Cohn sub, E. Villareal gr, 2 mi sw Corpus Christi, 6000-ft test.

SOUTH CENTRAL TEXAS

COMPLETION

LaSalle County: Washburn—Quintana Pet. Co.'s South Texas Synd, 10, sec 86, dual sand, 438.53 bbls 42.1-gr, ¼-in, 625 lbs tp, sand 5534-50 ft, 5-in 5536 ft, large gas well, ungauged; perf 5130-50 ft w/150 shots, sand 5130-76 ft, td 5552 ft, sand at 5100 ft is new zone for field.

WILDCAT STARTS

Atascosa County—Jessie Briggs' Stevens 1, 2000 ft n, 660 ft w lines I&GN 1747, 4 mi sw Verde, 1250-ft test.

Guadalupe County—J. H. Eddy's Campion 1, 1536 ft s, 660 ft w lines 106-ac tr, J. D. Clement sur, se of Seguin, Edwards lime test.

Williamson County—Allison & Gage's Fehlberg 1, 660 ft s and w lines 107-ac tr, P. Zarza sur, 7 mi n Thrall, 850-ft test.

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■ 500—Good used 2" Return Bends Standard 125 lb. Screw End close, open and special wide pattern. Large stock dependable used all sizes fittings, swage nipples, valves. Inquiries solicited. Central Pipe & Supply Co., P. O. Box 1442, Lubbock, Texas.

■ FOR SALE: 1-Ingersoll-Rand 6 and 12x12 Imperial Type 10 Compressor, $1,000.00. 1-80 h.p. Bessemer Gas Engine and 7 and 12x20 Compressor, $1,000.00. 2-90 h.p. Pattin Bros. Gas Engine and Direct-Driven Compressors 11½ and 6x14, $2,000.00 and $1,500.00. 1-60 h.p. Pattin Bros. Gas Engine and 5x14 Compressor, $1,000.00. All now in operation near Cisco, Texas. Dean Bros., W. T. Waggoner Building, Fort Worth, Texas.

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■ Want small portable rotary capable of 500' 6" hole, under $1000.00, also small swivel, hose, 4 x 5 or 4 x 6 pump, reply Box 254, Powell, Wyoming.

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Texas Gulf Coast

Gas-Distillate Field Discovery Testing

New tests made in distillate discovery, Harris County; production test due in deep outpost to Chocolate Bayou field, Brazoria County.

Harris County: Pure Oil Co. has opened a distillate field near Alief with new tests being made in Albanese 1. Operators originally completed the well at 8066-80 ft for 37 barrels of distillate and 4 million gas daily through ¼-in choke, but the pipe was reperforated at 7919-24 ft, and on 9-hour drill-stem test made 23 bbls of 54-gravity distillate and a large amount of gas.

Brazoria County: Stanolind is drilling plugs to make a production test in Houston Farms 1, wildcat on northwest side of Chocolate Bayou field. Drilled to 11,537 ft, a string of 5½-in casing was cemented at 11,534 ft to test Frio after running electrical survey. Details have been withheld.

In the Bailey's Prairie area, Brazoria County, Glenn McCarthy is reported to have opened new production with completion of Bascom Munson 1. Accurate information is being withheld, however it is reported two sands have been found capable of making some kind of producer. Meanwhile, McCarthy is moving rig to drill M. S. Munson 1, mile north of the first test.

COMPLETIONS

Fort Bend County: Needville—W. L. Goldston's Lehmann 1, 100-ac tr Robert Hodge sur, 660 ft fr se & 494 ft fr ne & sw l's of tr. Perf 5181-87 ft, flow 115 bbls 28-gr, ⅛-in, tp 600, cp 825, gor 750/1, td 5405 ft; new sand.

Wharton County: Withers—F. W. Michaux's Pierce Est. 60-A, Charles Howard sur, perf 5328-34 ft, flow 198 bbls, 10/64-in, tp 625, cp 600, gor 254/1, td 5375 ft.

WILDCAT STARTS

Harris Couty—J. H. Woodard's Griffith 1, 3 mi sw Humble, 660 ft fr n & wl 500-ac tr, A. R. Bedman sur, lcn 4200-ft test.

Matagorda County—Pure's LeTulle 1, Citrus Grove area, 2275 ft fr nl LeTulle lse in Erastus Yeamans sur, A-419, lcn 6000-ft test.

Louisiana Gulf Coast

Texas Company Opens Sand on Leeville Flank

New deep sand opened on southwest flank Leeville dome, LaFourche Parish; Gulf still attempting test on Hayes area wildcat; deep well spudded in Lewisburg area.

LaFourche Parish: Texas Co. has opened a new and deeper sand on southwest side of the Leeville dome with LLE-Leeville 86, 34-21s-22e, flowing 235 bbls 29.2-gravity oil from perf 10,078-085 ft, tubing pressure 1225 pounds. Total depth is 10,328 ft, casing set at 10,093 ft. Test was made through 5/32-in choke with gas-oil ratio of 337/1. Thus, with completion of the flank producer it is expected considerable acreage is opened for new development.

Golden Meadow: Activity is being revived at Golden Meadow with Texas Co. staking two locations, La Terre 15 and 16. Drilling in this field has been at a standstill for several weeks.

St. Landry Parish: Stanolind spudded another deep test in the Lewisburg area, Lewisburg Unit 1-27 (Wimberly), 3800 ft northeast of the discovery, which produced distillate, and is southwest of the Dohmann outpost, now waiting on orders at 10,501 ft.

Wildcats: R. S. Bond has spudded a Wilcox test on the Holloway Prairie

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CONSULTING GEOLOGIST
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prospect, Rapides Parish, on O'Neal Estate lands, several miles north of the recently discovered Deville field.

COMPLETIONS

Acadia Parish: Wildcat — Continental & Sun's Homeseekers 1, Easterwood, 16-10s-1w, abnd 12,130 ft.

Jefferson Parish: Lafitte—Texas Co.'s School Board-Lafitte 3, 423 ft w, 1674 n se cor 10-17s-24e, perf 10,100-118 ft, flow 190 bbls, 5/32-in, td 10,650 ft.

Plaquemines Parish: Grand Bay — Gulf's Grand Prairie Levee Dist. 17-A, 2685 ft alg wl sec 5 fr sw cor & 2382 ft e at ra in 5-20s-19e, sand 9904 ft, perf 9995-10,005, flow 349 bbls, 3/16-in, td 10,015 ft.

Plaquemines Parish: Quarantine Bay—Gulf's State-Quarantine Bay 5QQ, 9317 ft e, 3930 n sw c 7-19s-17e, perf 8566-76 ft, flow 163 bbls, 5/32-in, tp 450, td 8578 ft.

WILDCAT STARTS

Assumption Parish—George Echols' Dugas & LeBlanc 1, se flank Napoleonville dome, c nw nw 55-12s-13e, lcn.

Jefferson Parish — Vendome Petroleum Corp.'s Bayou Latour Community 1, 515 ft n, 1908 w se cor 37-15s-24e, lcn.

Rapides Parish—Roland S. Bond's O'Neal Est. 1, Big Island area, 1980 ft s, 660 e nw cor 20-5n-3e, Gilger Drilling Co., cont., lcn.

Vernon Parish—W. S. Smith's Nona Mills 1, Hadden Ferry area, 1040 ft e, 1002 s nec ne se 31-3n-11w, lcn.

North Louisiana

Haynesville Has 29 Operations Active

Two new wells from Pettit completed at Haynesville, where 14 locations brought total operations in that field to 29.

LaSalle Parish: Carter's Catahoula Lake A-1, SW NW 5-6n-4e, pumped 86 bbls oil and 22 bbls brackish water in 12 hours, from 4084-92 ft; total depth 5490 ft.

COMPLETIONS

Bossier Parish: Wildcat—R. H. Crow et al's Wheless 1, sw ne 20-18n-12w, abnd 6131 ft.

Claiborne Parish: Haynesville—Gulf's Seegars et al, se ne sw 11-23n-8w, 5000 gals acid, flow 28 bbls hr, 9/32-in, 5370 ft.

J. B. White's Bond 1, sw sw 15-23n-8w, 3000 gals acid, flow 35 bbls hr, 18/64-in, 5300 ft.

Caddo Parish: Pine Island—H. C. Cummings' Oil City 1, sw se 7-20n-15w, abnd 3085 ft.

LaSalle Parish: Wildcat — Carter's Catahoula Lake A-1, sw nw 5-6n-4e, perf 4084-92 ft, pump 86 bbls oil, 22 bbls brackish water 12 hrs, 5490 ft.

Natchitoches Parish: Wildcat—C. P. Johnson's Lacaze 1, 63-6n-4w, abnd 4740 ft.

Arkansas

Midway East Trend Has Higher Formation

Midway's prospects east and southeast were boosted in showing of Barnsdall's Creek 1, 10-15-24, flowing ungauged after finding porosity 6420 ft, 60 ft higher than the discovery in same section; operator's Roberts 2, 11-15-24, had porosity 41 feet higher than discovery. Field's limits have been set northwest, west and northeast.

LaFayette County: McAlister Fuel Co.'s Jeffus 1, C NE NE 4-19-24, set state's depth record as it drilled 10,104 ft, not yet finding Smackover lime.

COMPLETIONS

LaFayette County: Buckner—E. G. Bradham's Key 1, nw nw 7-16-22, abnd 7350 ft.

Union County: East Schuler—Root's Mason 1, c nw ne 23-18-17, abnd 5840 ft.

Southeastern States

MISSISSIPPI

COMPLETIONS

Pearl River County: Wildcat — Placid's Southern Mineral 2, c ne ne 9-3s-14w, abnd 5495 ft.

Sharkey County: Wildcat—E. C. Johnston & Sam Cook's Klaus 1, ne ne 19-11n-7w, elev 105 ft, Tallahatta 1437, Wilcox 1651, Midway 2855, Clayton 3326, gas rock 3338-3376 ft, Paluxy 3376 ft, abnd 4024 ft.

Yazoo County: Tinsley Dome—E. C. Johnston's Martin 13, ne sw 1-9n-3w, elev 325 ft, Selma 4883, Woodruff 4951, pump 275 bbls, 4961 ft.

ALABAMA

WILDCAT START

Covington County—Strake Pet. Co.'s Bullard 1, 10-2n-14e, mat.

Rocky Mountain Area

New Deep Zone Found In Pilot Butte Field

New deep zone Pilot Butte field and new gas field, Sherard Dome, Wyoming.

Pilot Butte: Superior and British American's Tribal 1, SE SW SW 15-3n-1w, flowing 28 bbls of 28-gr hourly, 300 perf Tensleep 6478-6678 ft, total depth 6775 ft; new sand, Pilot Butte, Fremont County, Wyoming.

Sherard Dome: On the south dome of the Serard Anticline, Carbon County, Wyoming, Sinclair-Wyoming's Carter 1, NE SE SE 31-25n-88w, new gas field, 8.0 ft, Lakota sand 2950-85 ft, and 3024-64 ft. Test pb to 4433 ft after getting 150 bbls water hourly 185 ft in Tensleep, td 5185 ft.

MONTANA

COMPLETIONS

Glacier County: Cut Bank—Frances Oil Co.'s 197-Tribal 3, nw sw sw nw 30-32n-5w, 105 bbls pump, td 3014 ft.

A. Kately Agent's Mattson 1, Lot 2, 15-34n-6w, pump 69 bbls, td 3014 ft.

Santa Rita Oil & Gas Co.'s Klein 2, cne nw 21-32n-5w, swab 30 bbls, Lower Cut Bank 2800-2805 ft, td 2814 ft.

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California

Wildcat in Kern County Has Slight Oil Show

Bottomed in gray sand at 8797 ft Richfield's Ponte 1 wildcat, 30-13-17, Kerman area, Fresno County, has been abandoned. Eocene was topped at 4615 ft, Cretaceous at 4770 ft and Kreyenhagen at 4434 ft.

COMPLETIONS

Fresno County: Helm—Amerada's Clover 75-28, 2310 ft n 990 w se cor 28-16-17, flow 178 bbls 40.1 gr, 14/64 bean, 800/0 lbs, perf 8047-8016 ft, td 8110 ft, pd 8093 ft.

Fresno County: East Coalinga Eocene—Standard's 64-13C, 2310 ft s 1529 w ne cor 13-20-15, flow 3920 bbls 32.5 gr, 48/64 bean, 730/0 lbs, 239 ft perf 7180 ft, td 7200 ft.

Kern County: Buttonwillow—Texas Co.'s Root 9-C, 1318 ft n 1326 e sw cor 9-29-24, flow 6,000,000 gas, perf 3973-3993 ft, td 4940 ft.

Texas Co.'s KCL 24-C, 1329 ft n, 1334 e sw cor 24-29-24, td 4950, pd 4780 ft, abnd.

Kern County: Kern River—Seaboard's Fuhrman 1, 350 ft s, 260 w n¼ cor ne 28-28-28, Vedder 3878 ft, lower Vedder 4120 ft, granite 5226 ft, abnd.

Kern County: Paloma—Western Gulf's Symons 12-7, 938 ft s, 341 e nw cor 7-32-27, flow 44 bbls 50 gr condensate, 26/64 bean, perf 10935-10895 ft, top light oil sand 11270 ft, top oil zone 11275 ft, td 11811 ft, pd 10997 ft.

Kern County: Grapevine-Wheeler Ridge Area—Richfield's KCL 3, 1839 ft s, 3326 w ne cor 36-11-20, td 6291 ft, pd 550 ft, gray sand 5788 ft, abnd.

Kern County: Greeley—Standard's KCL 11-30, 75 ft n, 1375 e sw cor 17-29-26, flow 2202 bbls 35.7 gr, 30/64 bean, 1020/0 lbs, 96 ft perf 11509 ft, td 11510 ft.

Kern County: Mount Poso—General's Heisen 38, 781 ft n, 440 w s¼ cor 16-27-28, pump 131 bbls 15-gr, 37 ft perf 1941 ft, td 1942 ft.

Kern County: Richgrove Area—Termo Co.'s Parker 1, 2310 ft n 990, w se cor 12-25-27, vedder absent, abnd 1775 ft in gray sand and shale.

Los Angeles County: Oak Canyon—Western Gulf's Gilmour US 1, 852 ft s, 448 e w¼ cor 32-5-17, flow 254 bbls 34.9 gr, 12/64 bean, 690/1200 lbs, perf 7200-7288 ft, td 7481 ft, top oil zone 7190 ft.

Los Angeles County: San Fernando Area—Tide Water's Mission 1, 1814 ft s, 3742 e Station 84, abnd 9291 ft.

Tulare County: Pixley Area—Continental's Pixley Comm. 1, 330 ft s, 330 e w¼ cor 9-23-25, abnd 7906 ft.

WILDCAT STARTS

Kern County—M. T. M. Associates' No. 1, sec 23-30-30, lcn.

Los Angeles County—Bay Shore Oil Co.'s Cramer 1, 30-1-12, lcn.

Barnsdall's T.I.T. 1, 30-3-15, lcn.

Michigan

Reed City Production Extended Mile South

Reed City production was extended a mile south when Ohio Oil Co.'s Walker 1, C N½ NW NW 8-17n-10w, Richmond Township, Oceola County, swabbed 31 barrels daily after acid treatment. Before acid it had 600 ft oil in hole after 12 hrs.

COMPLETIONS

Clare County: Headquarters—Pure's McCann 1, w½ nw 3-20n-3w, Traverse 3355-90 ft, flow 190 bbls 1st hr, td 3400 ft.

Lake County: Reed City—Ohio's Bader-Schneider 1, n½ nw ne 25-18n-11w, Traverse 2960-67 ft, pump 40 bbls after acid, td 2967 ft.

Macomb County: Wildcat—Devonian Testing & Leasing Co.'s Kraft 1, ne ne nw 27-2n-12e, abnd 730 ft.

Montcalm County: Edmore—Belvidere Oil Co.'s Anderson 1, se ne ne 12-12n-6w, abnd 1344 ft.

Osceola County: Reed City—Ohio's Walker 1, n½ nw nw 8-17n-10w, Monroe 3585-3615 ft, 600 ft oil 12 hrs, swabbed 31, 30, 27 bbls first 3 days, td 3615 ft.

Ottawa County: Polkton—Associated & Southwest's Burnell 1, ne se se 10-8n-14w, Traverse 1882 ft, abnd 1912 ft.

Tuscola County: Akron—Kirkham & Kales Co.'s Fisher 1, e½ ne se 29-14n-8e, Dundee 2790-2810 ft, pump 20 bbls after acid, td 2815 ft.

Van Buren County: Bloomingdale—Clapsaddle & Harris' Healy 1, sw ne nw 10-1s-14w,

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WILDCAT STARTS

Barry County—Homer Fulton's Case 1, nw sw ne 9-1n-8w, rig.

Allegan County—C. W. Cook's Hellenga 1, ne ne nw 33-2n-12w, dr.

Kent County—W. S. Cook's Tertellet 1, se sw ne 6-10n-9w, rig.

Mecosta County—Belvidere Oil Co.'s Hand 1, sw se se 4-13n-9w, rig.

Mason County—Gordon Oil Co.'s Cartier 2, s½ sw sw 22-20n-15w, lcn.

Eastern States

NEW YORK
COMPLETIONS

Allegany County—Vosburg Oil Co., Green farm, Bolivar, 5 bbls, Richburg, 1349 ft.

New York Oil Co., Gadsby farm, Bolivar, 7 bbls, Waugh-Porter, 1432 ft.

Central Oil Co., Holtum farm, Scio, 5 bbls, Richburg, 1062 ft.

N. V. V. Franchot, Emerson farm, Scio, 7 bbls, Richburg, 1376 ft.

Albert Oil Co., Coats farm, Alma, 7 bbls, Richburg farm, 1245 ft.

Bradley Prod. Corp., Fitz-Carroll farm, Bolivar, 10 bbls, Richburg, 1426 ft.

Bradley Prod. Corp., Potter farm, Independence, 20 bbls, Fulmer, 2400 ft. new pool.

A. C. Shaner Oil Co., Congdon farm, Clarksville, 9 bbls, Clarksville, 1275 ft.

Gray Oil Co., Smith farm, Genesee, 8 bbls, Richburg, 1339 ft.

Messer Oil Co., Kohler farm, Clarksville, 7 bbls, Richburg, 1339 ft.

New York Oil Co., Brown farm, Bolivar, 8 bbls, Waugh-Porter, 1380 ft.

Sawnett Oil Co., Merritt farm, Genesee, 8 bbls, Richburg, 1426 ft.

INTAKE WELL

Allegany County—Ebenezer Oil Co., Herrick farm, Bolivar, Richburg, 1271 ft.

Bradley Prod. Corp., Nobles farm, Alma, Richburg, 1166 ft.

South Bolivar Oil Co., McKelvey farm, Bolivar, Richburg, 1070 ft.

Producers Oil Corp. "A," Keller-Scott farm, Wirt, Richburg, 1066 ft.

Ebenezer Oil Co., Vincent farm, Scio, Richburg, 1126 ft.

Messer Oil Corp., Garrison farm, Alma, Richburg, 1459 ft.

Pure Penn Oil Co., Hill farm, Scio, Richburg, 1362 ft.

Bradley Prod. Corp., Fitz-Carroll farm, Bolivar, Richburg, 1419 ft.

P. J. Shaughnessy et al, Shaughnessy farm, Willing, Fords Brook, 1372 ft.

P. H. Fuller, Fuller farm, Scio, Scio, 676 ft.

OHIO
COMPLETIONS

Athens County—Ohio Fuel, Cunningham 1, abnd 1519 ft.

Knox County—James Ridgeway, Spurgeon 1, abnd 3268 ft.

Medina County—Ohio Fuel, Blakeslee 1, abnd 3237 ft.

Monroe County—John Lumbalis et al, Stallings 1, abnd 1562 ft.

Bauman et al, Bauman 1, 1 bbl and 0.03 gas, 1520 ft.

Muskingum County—Wilkins Oil Co., Jenkins 1, 0.4 gas, 3123 ft.

Perry County—C. Z. Ruth, North West Coal Co., abnd 1118 ft.

Seneca County—Poe Elliott, Conner 1, abnd 1980 ft.

Summit County—East Ohio, Schnaultz 1, 0.14 gas, 4662 ft.

Vinton County—Salesbury, Vickers 2, 0.03 gas, 628 ft.

Washington County—Dickey Oil Co., Dutton 1, abnd 1548 ft.

Wayne County—Mehowa Oil & Gas Co., Rickabaugh 1, 1.8 gas, 3187 ft.

PENNSYLVANIA
COMPLETIONS

Armstrong County—T. W. Phillips Gas & Oil Co., Elgin 1, 0.12 gas 3271 ft.

Greene County—Mfgrs. Lt. & Ht. Co., Aulo Heirs 2, 0.44 gas, 3255 ft.

Washington County—Mfgrs. Lt. & Ht. Co., Jenkins 1, 0.1 gas, 2832 ft.

WEST VIRGINIA
COMPLETIONS

Calhoun County—K. M. Hunt et al, Butler 1, 2.72 gas, 2315 ft.

Jackson County—Mullins Gas Co., Conant 1, 14.93 gas, 5065 ft.

United Carbon Co., Hyre 996, 0.38 gas, 4990 ft.

United Fuel Gas Co., Hutchinson 5051, 2.3 gas, 5157 ft.

Kanawha County—Poca Fork Oil & Gas Co., Painter 1, 1.22 gas, 5337 ft.

Logan County—Boone County Coal Co., Fee 27, 1.57 gas, 2317 ft.

Ritchie County—Leavitt & Black, Heater 2, abnd, 2105 ft.

Upshur County—French Creek O&G Co., Colerider 1, 0.52 gas, 4076 ft.

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Men in the Industry's News

JAMES ANDERSON, director and vice president and treasurer of Humble Oil & Refining Company, was honored at a dinner given by Humble directors at Houston April 16. Anderson, who joined the company in March, 1919, in charge of construction and operation of all pipe lines, will retire at the end of April.

Anderson, a native of Rockville, Maryland, was elected president of Humble Pipe Line Company February, 1920. On February 15, 1921, he was elected vice president and director of Humble Oil & Refining Company in charge of crude oil purchases and sales. On August 1, 1941, he was named treasurer in addition to his other duties.

The retiring executive graduated from the University of Maryland in 1896, and also is a graduate in electrical engineering from the Bliss School of Electricity, Washington, and a graduate in naval architecture and marine engineering, Franklin Institute, Philadelphia. He served as superintendent of the Rockville, Maryland, light and water works in 1897-98. In 1899-1902, he was special apprentice at the Cramp Shipyards, Philadelphia. He was a draftsman for the Pennsylvania Railroad in 1902, and in 1903-06 he was assistant engineer in the U. S. Navy, Bureau of Steam Engineering. He joined The Ohio Oil Company in 1906 as a mechanical engineer. In 1909 he went with Standard Oil Company of Louisiana, Shreveport, as supervisor of pipe line construction and as assistant superintendent of the crude oil department.

He is a civic leader in Houston, and is serving as president of the Houston Community Chest at present.

KENYON L. REYNOLDS of Pasadena, California, and Robert W. Ducker of Tulsa are new OPC appointments. Reynolds will serve as chief of the natural gas and natural gasoline section for District 5, and Ducker as natural gas analyst in the natural gas and natural gasoline section. Reynolds will be stationed in the Los Angeles office, with Reed W. Garman as assistant chief, while Ducker will serve in Washington.

GEORGE W. STOCKING has been appointed assistant administrator of OPA in charge of the fuels division under Administrator Leon Henderson. Stocking has been in Washington since June, 1940, first as assistant director of the bureau of research and statistics in the National Defense Advisory Commission and, since December 1, 1940, as economic consultant of the Department of Justice.

D. F. SEARS, general superintendent of Shell Pipe Line Corporation, Houston, is scheduled to be OPC's new pipe line head, with Charles L. Lockett, former OPC pipe line chief, having been transferred to the transportation priorities section. Sears has been with Shell 15 years.

LEE R. COWLES, traffic manager, Standard Oil Company (Indiana), has been named assistant director of transportation for OPC.

WM. F. HUMPHREY, president of Tide Water Associated Oil Company has been appointed chairman of the General Committee for District No. 5, taking the position of A. L. Weil, who has resigned after serving since the original appointments to industry advisory committees were made by Petroleum Coordinator Ickes last July. Humphrey will continue to serve as a member of the Petroleum Industry War Council.

GARVIN D. CHASTAIN has been transferred from the Chicago office of District No. 2 OPC to Mt. Pleasant where he is in charge of the Michigan field office.

MAURIE WALTERS, superintendent of the Michigan division of Sohio Corporation and Sohio Pipe Line Company, has been detailed to Jackson, Mississippi, to supervise organization of a new system in the Tinsley field.

THOMAS C. WILLIAMS has been transferred from the Illinois division to Mt. Pleasant in charge of the Michigan land division for Cities Service Oil Company.

JAMES F. McMANMON, vice president of National Bank of Tulsa, has resigned to accept an executive position with Hanlon-Buchanan, Inc., Tulsa, producers and manufacturers of oil industry equipment. The new executive of the firm has had varied experience in producing, and was an assistant in developing the present Panhandle Eastern System. His first oil field experience was in Burbank following his graduation from the engineering college at Princeton University.

D. E. MARTIN, attorney, Wilcox Oil and Gas Company, has been elected president of Young Men's Club of Tulsa. Ray Lowe, assistant purchasing agent, Pure Oil Company, was elected treasurer.

C. I. LUNDGREN, Taylor Windfield Corporation, spoke on "Resistance Welding in Industry" before a meeting of the Tulsa Chapter of American Welding Society.

FRED PURL, engineer, Phillips Petroleum Company, formerly located in Wewoka, has moved to Oklahoma City.

G. A. TOMPSON, vice president, Bethlehem Supply Company, spoke on "Washington Observations" before Tulsa Purchasing Agents.

SENATOR TOM CONNALLY of Texas has proposed legislation to set up a federal loan agency to aid independent oil operators. Connally proposes that the agency be under Petroleum Coordinator Ickes, and would lend money to encourage wildcatting.

C. A. STEARNS, oil operator of western Kansas, died at Hutchinson of a heart attack recently.

J. W. FLANAGAN, president of the Andian National Corporation, operator of the Andian National pipe line, was in Bogota last week in the course of a tour of South American countries. He is reported to be planning to submit a report to Washington containing his views of South American economic conditions and recommendations for solutions of various problems. Flanagan is expected to visit Venezuela next.

H. C. WIESS, president of Humble Oil & Refining Company, and W. M. Griffith of Sinton, Texas, vice president and general manager of Plymouth Oil Company, were honor guests at the annual oil men's meeting of the South Texas Chamber of Commerce, San Antonio, April 17. D. E. Blackburn, Victoria, Texas, presided at the banquet, and Al Buchanan, San Antonio oil producer, served as toastmaster. Ray Leeman, executive vice president of the regional chamber, presented plaques to the honor guests.

ROLAND F. HODDER of Brown Geophysical Company addressed the Houston Derrick Club meeting April 16 on "Geophysical Trends in the Gulf Coast Area." New club officers are James Lee Kerr, Brown Geophysical Company, president; Richard Rosencranz, Shell Oil Company, vice president; Sam Blackwell, Shell Oil Company, secretary; John Foster, The Texas Company, treasurer.

HARRY D. AGGERS, SR., pioneer oil man, died in Long Beach, California, March 23. He once was connected with L. H. Wentz, Ponca City; Eastern Oil Company, Tulsa; Midco Oil Company, Tulsa; U. S. Department of Interior, Pawhuska; and the Bureau of Mines, Drumright, Oklahoma.

PERRY OLCOTT, George Buchanan, John Ivy and Paul Weaver prepared a paper on "Variations of Types of Crude Oils with Depth in Different Formation in the Texas Gulf Coast," which was presented before the Houston Geological Society, April 16. The paper was prepared for presentation at the A.A.P.G. convention in Denver.

R. W. DUCKER, chief engineer, Oklahoma Natural Gas Company, Tulsa, is assisting in natural gas coordination at the Washington OPC office. He is on leave from his firm.

R. P. BROOKS, JR., has been made oil editor of the Daily Times Herald, Dallas, with the establishment of an oil department by that paper. Brooks for the past two years was oil editor of the Dallas Journal which suspended publication three weeks ago. Prior to that he was for seven years oil editor of the Shreveport Journal.

JOHN A. McCUTCHIN, British American Oil Producing Company, Tulsa, has been elected chairman of Mid-Continent Section, AIME. Dave G. Hawthorne, Amerada Petroleum Corporation, Tulsa, is first vice chairman, and R. G. Hamilton, Schlumberger Well Surveying Corporation, is second vice chairman. Secretary-treasurer is W. Kendall, First National Bank and Trust Company,

Tulsa. The executive committee consists of R. W. Camp, Oklahoma City; H. S. Milam, Chelsea; Gray Umpleby, Tulsa; W. H. Barlow, Bartlesville; P. P. Manion, Tulsa, and H. F. Beardmore with P. E. Fitzgerald, both of Tulsa, serving as ex-Officio members.

DR. J. BRIAN EBY, consulting geologist and geophysicist, and Arnold H. Bleyberg, of Fohs Oil Company, both of Houston, recently discussed "Some Correlation on the Geology of South Mississippi" before the Mississippi Geological Society at Jackson, Mississippi.

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Orders Is Orders

The officer of the day stopped a mess orderly as he was carrying a soup kettle out of the kitchen. "Here you," he snapped, "give me a taste of that!"

Obediently, the orderly handed him a ladle. The officer tasted it . . . and promptly spat it out. "Great Scott!" he roared, "Do you call that stuff soup?"

"No sir, that's dish water."

Problem Solved

"Where will you live when you are married?"

"We've taken a house next to the station."

"But won't the trains keep you awake?"

"The agent said they wouldn't after the first few nights, so we're going to spend the first few nights with mother."

Growing

Clara, aren't you getting too big to play with the boys?

Oh, no mother; the bigger I get the better I like them.

Ensemble

She's pretty as a picture.

Yeah, nice frame, too.

Long Word

What's that there word "matrimony" mean?

That ain't no word—that's a sentence, man!

Precautionary Measure

"You'd better lock me up. I've hit my wife on the head with a hammer."

"Have you killed her?"

"I don't think so. That's why I want to be locked up."

Those Forms!

A friend, visiting a business man in his office, watched him sign a stack of letters.

"Don't you read your letters before you sign them?"

"Letters! I thought these were affidavits."

Safety First

"Mamma, please tell me how father got to know you."

"One day I fell into the river, and your father jumped in and saved me."

"Well, that's funny; he won't let me learn how to swim."

Exception

"No, you can't have it and that's the sixth time I've said no!"

"Wonder where pop gets the idea women are always changing their minds!"

To Be Exact

For more than an hour the witness had squirmed under the cold, hostile questioning of the opposing counsel.

"You say that you have crossed the Atlantic seven times?"

"Yes, sir."

"And where were you born?"

"Here in New York."

"Then, sir, if you were born in New York and have crossed the Atlantic seven times, how does it happen that you aren't on the other side at this moment? Answer me that!"

"Because, sir, on my last trip I came home by way of Siberia and Pacific Ocean."

Seismic prospecting in Jersey ...*for oil 1000 miles away!*

THERE'S NO OIL beneath his lab—yet this research worker is checking results on a seismic shot as carefully as any member of a seismograph crew in a distant oil field. Reason—he's searching *not* for oil—but for ways to improve performance of electric blasting caps in seismic prospecting.

His "oil field" is a section of the sixty-five acre tract that comprises the Du Pont Explosives Research Laboratory. His "crew"—a staff of du Pont explosives engineers. The instrument before him—a cathode ray oscillograph, capable of accurately measuring intervals of time down to *a hundred thousandth* of a second and employed as a time break recorder.

The work that this man and others of the laboratory staff are doing, didn't start just the other day, and it won't end tomorrow—it's part of a continuing program of research and development on electric blasting caps, instituted by Du Pont over ten years ago. Out of this program have come many outstanding advances in blasting cap construction and performance, culminating in the modern Du Pont "SSS" Electric Blasting Cap—a detonator unsurpassed for its fine performance under the most difficult field conditions.

Space doesn't permit telling more about this research program and the modern blasting agents and accessories it has developed. But that and a lot more is covered in our new 36-page booklet entitled "Du Pont Products for Seismic Prospectors." Write for your copy today to: E. I. du Pont de Nemours & Co. (Inc.), 2506-S Nemours Bldg., Wilmington, Del.

Visit Du Pont at the Petroleum Geologists Show, Denver, Colorado, April 21-24.

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Notes for the Equipment Buyer and User

Gas Generator

WELDERZ FREND GENERATOR COMPANY

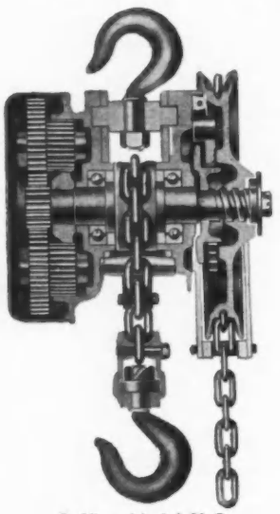
Welderz Frend Generator Company, Amarillo, Texas, has developed an improved acetylene gas generator for welding, automatically as needed.

Gas is generated by the machine and is used both in the field and at the plant and shop. One of the main features of the generator is its portability.

Chain Hoist

COFFING HOIST COMPANY

Coffing Hoist Company, Danville, Illinois, has announced an improved standard type, spur-geared chain hoist. It is recommended for many applications in practically all lines of industry where a maximum amount of speed, safety, durability and efficiency is essential. This hoist, known as Model Y-C, is equipped with a dust guard to protect the Weston type brake from dust and dirt. Heavy suspension plates provide unbreakable support between top hook cross-head and load sheave. These plates also directly support the saddle for double-chain hookup, an entirely new feature in this type hoist, and eliminate the use of a top yoke thus reducing weight and headroom and permitting hoist to hang evenly at all times. The load sheave is mounted on two heavy precision ball bearings, enclosed and protected from dust and grit. Model Y-C embodies many other outstanding features and is built in six capacities, ½, 1, 1½, 2, 3 and 4 tons. The manufacturer states that all capacities are factory tested at 100 percent over their rated capacity and are guaranteed against defective material and workmanship.



Coffing Model Y-C

Oil Well Supply Company Speed War Contracts

B. F. Harris, president of Oil Well Supply Company, a subsidiary of United States Steel Corporation, announced the company has completed Army orders for 1,000,000 anti-aircraft projectiles 62 days ahead of schedule. Speeding its production schedules, the company will continue the manufacture of these shells as well as numerous other items essential to the war effort.

Among other Army and Navy articles under production at Oil Well Supply Company plants are breech and firing mechanisms; tank rings; ship and airplane castings; diesel-driven centrifugal pumps; housings for large Navy guns; and the machining of larger size shells.

Lincoln Electric Company Welding School Praised by Army

The Office of the Chief of Ordnance, Washington, has presented a letter of appreciation to The Lincoln Electric Company, Cleveland, Ohio, for the cooperation of the Lincoln School of Arc Welding in providing welding instruction for ordnance inspectors.

The presentation was made by Captain H. M. Reid of the Cleveland Ordnance District to J. F. Lincoln, president of The Lincoln Electric Company.

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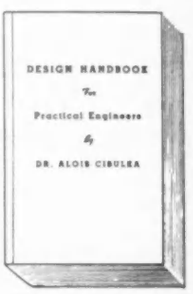
Austin, Texas



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Noheev mud was primarily designed for use in the more difficult formations but experience has shown it to offer economies even on the less troublesome jobs.

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See Composite Catalog Page 1958.

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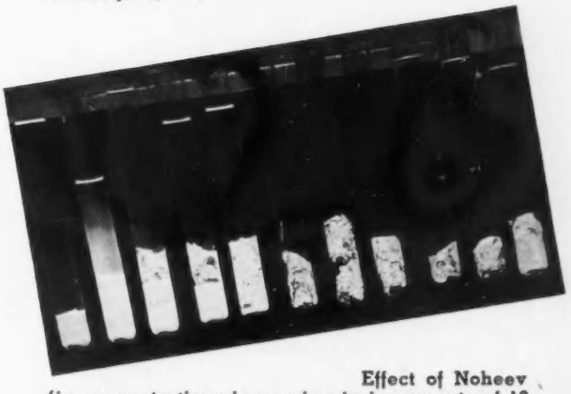

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Los Angeles Nomads Appoint Committees

The flying experiences of an American pilot in China were described before the Los Angeles Chapter of Nomads April 8. Captain Royal Leonard, the main speaker, once was a pilot for the Chinese.

Bill Bettis, Nomads president, announced standing committees to serve for the next year. They are: entertainment, Roland Smith, chairman, Tom Murphy and J. V. Robinson; membership, Fred Ripley, chairman, Bert Stone and George Colley, Jr.; ways and means, Abe Haglung, chairman, Charles Tut Lee, and Harry Morehouse; ritual and induction committee, Earl Rees, chairman, Elmer Decker, Ted Sutter and Frosty Martin; publicity, Wallace Sawdon, chairman, Fred Ridley, editor of the Flying Carpet.

Three men of the Latin American consular service were introduced by Bart Gillespie. These were Fernando Flores, vice consul to the consul general of eleven Western states for Costa Rica; Duke N. Banks, consul for Bolivia; and Carlos Grimm, vice consul for Mexico.

Among the foreign guests present were A. Templaar-Lietz, formerly with C. P. C. in Venezuela; Reiner H. Van-Nierop and D. A. Kwakernaat of V. O. C., Venezuela; Temple Waite of the U. B. O. T., Trinidad; H. A. Baker, J. S. Dykes and C. D. Hendershott recently with N. P. P. M. in Java and Sumatra; Jess Rector from Canada; Bill Thornberry of Ecuador Oilfields, Ecuador; and Walter Shakelton from Canada.

Sheaves

Allis-Chalmers Manufacturing Company, Milwaukee, has issued a bulletin on vari-pitch texrope sheaves, showing how to increase machine flexibility and output with quick, accurate speed-changing.

Current needs for stepping up production can be satisfied by frequently increasing the flexibility of machines so that they can handle more jobs at higher efficiencies. By providing stepless speed variation up to 25 percent with one stationary or motion-control vari-pitch sheave, or a 50 percent variation when two vari-pitch sheaves are used, vari-pitch drives assure this extra machine-flexibility.

In the new bulletin, B6082-A, stationary and motion-control sheaves are described, and operating diagrams, sizes and dimensions are included.

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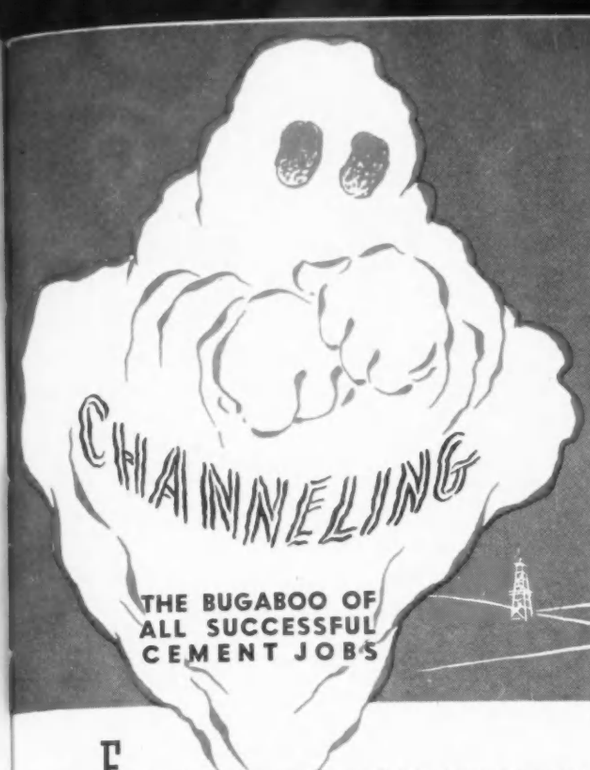

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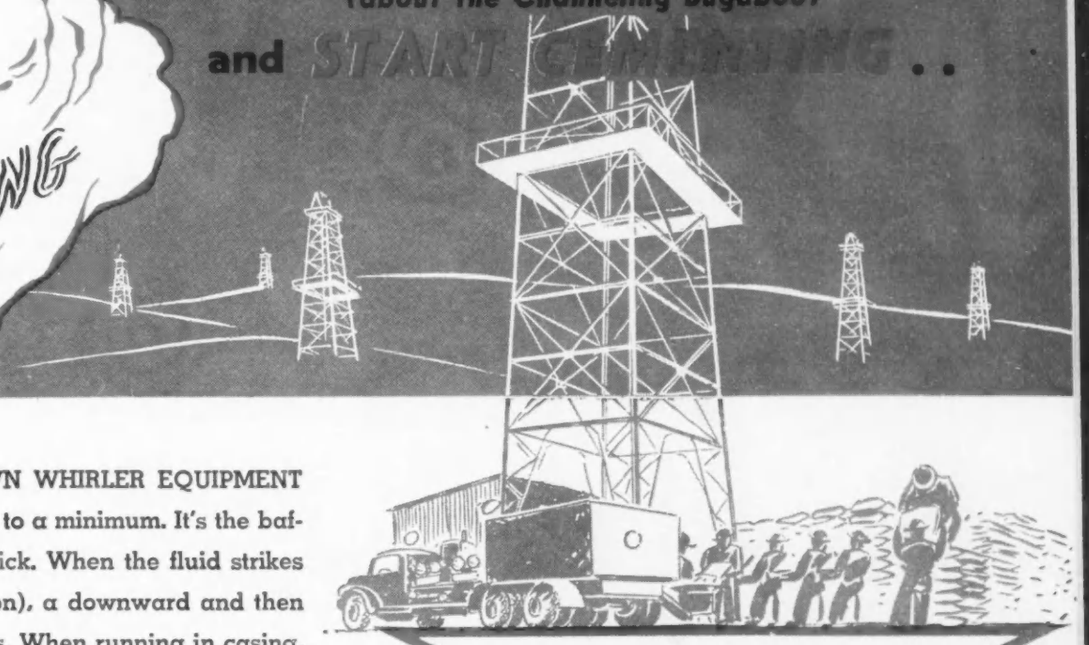

FOR BAKER WASH-DOWN WHIRLER EQUIPMENT reduces the hazard of channeling to a minimum. It's the baffled whirler ports that turn the trick. When the fluid strikes these baffled ports (see illustration), a downward and then an upward whirling action results. When running in casing, this whirling action provides a means of disintegrating and washing away bridges. When cementing, the whirling motion, imparted first to the fluid preceding the slurry and then to the slurry itself, washes the formation and properly prepares the hole. It then assures best possible distribution of a uniform body of cement around the shoe and the shoe joint. It is this uniform cement distribution that reduces the hazard of channeling to a minimum, and often saves a costly recement job.

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For more information, see page 227 of the 1942 Baker (or Composite) Catalog, or contact nearest Baker office or field representative.

Product No. 120

Quick FACTS

You Should Know About the

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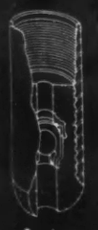
It Provides . . .

(1) Safe Guiding and Floating
(2) Efficient Washing Action
(3) Positive Acting BALL-TYPE Back-Pressure Valve
(4) Cementing Efficiency
(5) Easy Drillability

* *The Baker Wash-Down Whirler principle is also available in a Guide Shoe.*



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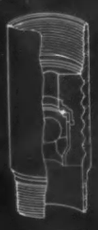
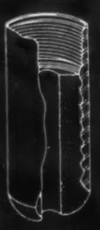
Baker Cement Float Shoe

Baker Cement Float Collar



Product No. 101 M&F

Baker Cement Guide Casing Shoe



Product No. 102

Baker Cement Wash-Down Whirler Float Shoe

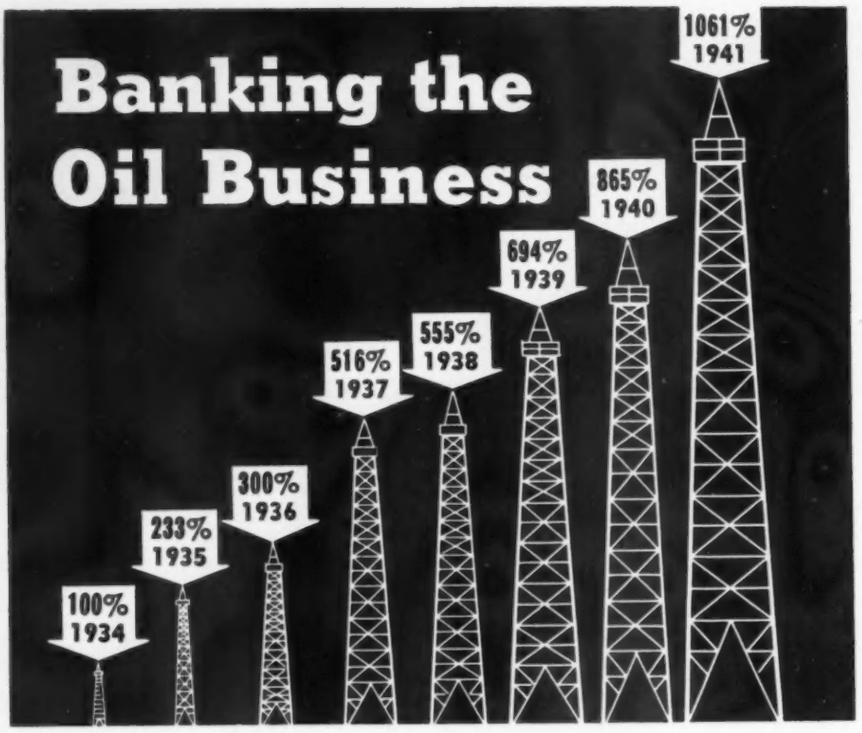
Product No. 120

Baker Cement Wash-Down Whirler Guide Shoe

Product No. 121

Baker Cement Whirler Float Collar with Solid Bottom Baffle with Metal "Petal" Basket

Product No. 306



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LOOKING AHEAD

. . . with the Editor

West Texas-New Mexico Special Number

The next edition of THE OIL WEEKLY will be devoted to the West Texas-New Mexico Permian Basin, and will present up-to-date data on reserves, production, proven acres, discovery means, number of wells, and other pertinent and valuable development information on each field in the territory.

The West Texas-New Mexico Permian Basin is a big land area, embracing 20¾ million acres, or 32⅓ thousand square miles. It also is an important oil region, currently producing 275,000 to 300,000 barrels daily despite drastic curtailment of output. Its vast expanse of potential oil land and a large number of proved undrilled locations, combine to make it an attractive exploratory and development territory. Consequently, it is one of the very few regions in the United States where drilling this year has been greater than the rate a year ago. The first three months of 1942 saw completion of 665 new tests in comparison with 514 completed during the corresponding period of 1941, and on April 1 there were 397 rigs in operation in the area.

For several months our editorial department has been gathering and compiling material for the issue. These data will be presented in the popular thumbnail history style originated by THE OIL WEEKLY. In addition, a more condensed summary of the more general information for each field will be published in a tabular form so as to provide a quick and handy reference. It has been almost five years since THE OIL WEEKLY has devoted one of its issues to this type of information on the Permian Basin. During this time almost 90 new fields have been discovered, many others have been extended materially, and others have been joined with adjacent pools. During this time something like 12,500 wells have been completed.

THE OIL WEEKLY, published every Monday. Entered as second class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.